



**Shri Shivaji Education Society, Amravati's**  
**Shri Shivaji Science College, Amravati**

Accredited by NAAC with 'A' Grade  
Identified as UGC- CPE, DST- FIST & SGBAU- Lead College  
Shivaji Nagar, Amravati, MS - 444603

**Six Days Hands on  
Training Course on**  
**Advanced Instrumentation  
Techniques and Their  
Practical Applications  
for PG and Research Students**

**Duration : 28 March, 2022 to 2 April, 2022**

**Organized by**  
**Department of Chemistry**

**- Course to be Conducted by -**

**Dr. Shrikant A. Wadhal**  
Course Coordinator

**Dr. G. N. Chaudhari**  
Head of the Department

**Dr. G. V. Korpe**  
Principal

# **Report on Six Days Hands on Training Course on “Advanced Instrumentation Techniques and their Practical Applications for PG and Research Students”**

## **Organized by the Department of Chemistry**

The Department of Chemistry has organized Six Days Hands on Training Course on “Advanced Instrumentation Techniques and their Practical Applications for PG and Research Students” from 28/03/2022 to 02/04/2022. Dr Shrikant A. Wadhal, Professor, Department of Chemistry took initiative as a course co-ordinator to effectively carry out the sessions of this course. In this course total 34 students from different colleges participated for six days. Mr. Amol Gawande from Peaks Analytical and Research Centre, Nagpur, Dr Shrikant A. Wadhal, Professor, Department of Chemistry and Mr Satish Dashore provided the students with hands on training regarding some latest instruments like HPLC, FTIR, UV- Visible, XRD, Atomic Absorption Spectrophotometer used in laboratories. This course proved to be very useful for students to get employment in various industries and Chemical laboratories and also to start their own enterprise. This certificate course definitely enhanced the student’s skill in instrumental techniques in chemistry. This course was successfully organized by the Department of Chemistry.

The course was inaugurated under the guidance of Dr G. V. Korpe, Principal, Dr. G. N. Chaudhari, Head , Department of Chemistry the Chief Guest of the function. Mr. Amol Gawande, Scientist, Peaks Analytical and Research Centre, Nagpur, was guest of honor. Mr. Amol Gawande discussed about his seventeen years working experience in various Industries. Mr. Amol Gawande gave Hands on Training of HPLC to the participants. Dr Shrikant A. Wadhal, Professor, Department of Chemistry and Mr. Satish Dashore, Incharge, Central Instrumentation Cell, provided hands on training of IR, UV- Visible and XRD, Atomic Absorption Spectrophotometer. Total 34 participants from different colleges of SGB Amravati University Amravati participated in this course, In this course participants were from G.V.I.S.H. Amravati, G. S.

Tompe Arts, Commerce, Science College, Chandur Bazar, Vidyabharati College, Amravati, Shri Shivaji Science College, Amravati. Certificates provided to students with A,B,C grade depending on score secured ( A<sup>+</sup>>=80%, A>= 65-79, B >= 50-64%, No certificate< 50%) 40% marks depends on assignment submitted and attendance and 60% marks depends on final examination score.

### **This course designed for:**

- PG and research students intending to work in a laboratory with scientific instrumentation.
- Students preparing for Industrial jobs after completion of PG and Ph.D. degree.
- The course designed for 40 hrs under value added course.
- Each participant paid course Fee Rs 1500/- for this course.

### **The course objectives achieved:**

- To impart the required knowledge of Industrial Scope, Applications & Opportunities for Chemistry
  - To impart the required knowledge, necessary skills & to provide the exposure to modern & sophisticated techniques of analysis that are being used all over the world including industries, government & public testing labs
- Theoretical knowledge of HPLC, IR, UV-Visible, XRD, Atomic Absorption Spectrophotometer,.
- Practical Hands on Training of HPLC,IR, XRD and UV-Visible, Atomic Absorption Spectrophotometer,
- To operate and to maintain the HPLC, AAS,UV-Visible, IR and XRD equipments.
- Instrumentation, Calibration and their practical applications in Industries.
- Wide courage has been given to Trouble shooting, Operation and method development skills.
- Perform cleaning evaluation on equipment for drug substance and residual detergents.

- Interactive sessions were engaged after completion of Hands on training session .In these sessions interaction between participants and resource persons were held to solve difficulties regarding problems in the instrumentations.

- **COURSE SESSIONWISE DETAILED INFORMATION:**

These are the detailed information of theory and Hands on training of HPLC, IR, UV-Visible, XRD, Atomic Absorption Spectrophotometer, .

### **1<sup>st</sup> day of Training Programme (28/03/2022)**

On 28<sup>th</sup> March 2022 Mr. Amol Gawande, Scientist, Peaks Analytical and Research Centre, Nagpur delivered Keynote speech on “Industrial Scope, Applications & Opportunities for Chemistry”. He delivered lecture “Instrumentation & Theory of HPLC” and then he provided hands on training of HPLC to all the participants in CIC Instrumentation laboratory.

He provided information regarding following good operating practices

- Isocratic HPLC, Gradient HPLC, Chromatographic conditions, Industries work based on Chemistry.
- Reverse phase HPLC, Normal Phase HPLC,
- In Instrumental training of HPLC Mr. Amol Gawande provided
- Training regarding Column(stationary phase) and liquid (mobile phase).
- How to inject dissolved sample into the flow path of the mobile phase.
- How to detect analytes bands, to quantitate peaks generated.
- .All these points were covered by providing individual sample to each participants and performing their hands on training.



GPS Map Camera



**Amravati, Maharashtra, India**

Shri Shivaji Science College Library, Opposite Neharu Stadium, Morshi Road, Morshi Rd, Amravati, Maharashtra 444601, India

Lat 20.939876°

Long 77.766081°

28/03/22 12:20 PM



GPS Map Camera



**Amravati, Maharashtra, India**

Shri Shivaji Science College Library, Opposite Neharu Stadium, Morshi Road, Morshi Rd, Amravati, Maharashtra 444601, India

Lat 20.93986°

Long 77.766493°

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## 2<sup>nd</sup> day of Training Programme (29/03/2022)

On 2<sup>nd</sup> day of Training programme each participant got hands on training of

1. Trouble shooting.
2. Calibration HPLC instrument.
3. Sampling and HPLC Software handling.

Mr Amol Gawande also emphasized on the importance of HPLC in the research of Chemistry, trouble shooting, calibration of instruments through theory as well as practical.



## 3<sup>rd</sup> day of Training Programme (30/03/2022)

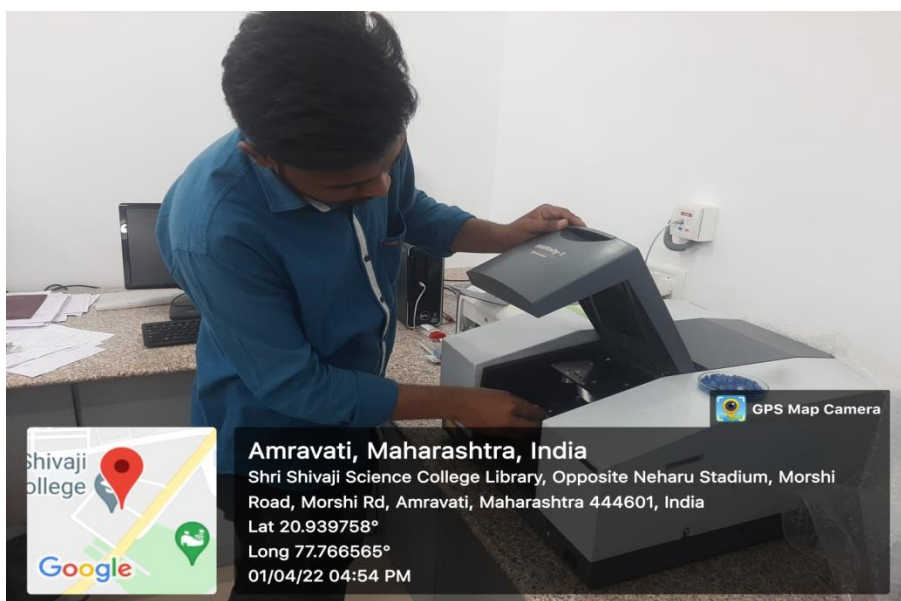
On 3<sup>rd</sup> day of Training programme Dr. Shrikant A. Wadhwal and Mr Satish Dashore had given hands on training XRD instrumentation. Participants had carried out the theory and practical training of samples for this XRD instrumentation.



## 4<sup>th</sup> day of Training Programme (31/03/2022)

On 4<sup>th</sup> day of Training programme Dr Shrikant A. wadhwal had given hands on training to each participant about IR, FTIR instrumentation. Participants had carried out the IR practical training of samples of research students.

1. Preparation of sample KBr pallet.
2. Performance of individual IR practical of each participants of various samples through IR.
3. Recording of IR spectra with interpretation of IR spectrum.
4. Theoretical sessions on i) Theory of IR spectroscopy and  
ii) Interpretation of IR spectrum





## 5<sup>th</sup> day of Training Programme (01/04/2022)

On 5<sup>th</sup> day of Training programme Dr. Shrikant A. Wadhwal and Mr Satish Dashore had given hands on training of Atomic Absorption Spectrophotometer instrumentation. Participants had carried out the practical training of samples for this instrumentation.



## 6<sup>th</sup> day of Training Programme (02/04/2022)

On 6<sup>th</sup> day of Training programme Dr Shrikant a. Wadhwal and Mr Satish Dashore had given hands on training to each participants about UV –Visible instrumentation. Participants had carried out the practical training of sampling, Recording of Spectrum for this instrumentation. Students performed UV-Visible practical of various samples. In the final session Final examination was conducted on this Instrumentation Course.



# Six Days Hands On Training Course on “Advanced Instrumentation Techniques and their Practical Applications for PG and Research Students”

## LIST OF PARTICIPANTS & RESULT

( Grade A+ >=80%, A >= 65-79, B >= 50-64)

<b>Sr No</b>	<b>Name of the Participant</b>	<b>Name of the Institute/College</b>	<b>E-mail ID</b>	<b>Grade</b>
1	<b>Ms. Bhargavi A. Narsekar</b>	Shri Shivaji Science College, Amravati	bhargavinarskar1999@gmail.co	A
2	<b>Ms. Vaishnavi S. Saraf</b>	Shri Shivaji Science College, Amravati	vaishnavi.saraf@gmail.co	A+
3	<b>Ms. Gauri R. Thakare</b>	Shri Shivaji Science College, Amravati	gaurithakare1709@gmail.co	A+
4	<b>Ms. Dnyaneshwari P. Fale</b>	Shri Shivaji Science College, Amravati	dnyaneshwarif@gmail.com	A+
5	<b>Ms. Riya D. Sagane</b>	Shri Shivaji Science College, Amravati	riyasagane09@gmail.com	A
6	<b>Ms. Vaishnavi K. Akolkar</b>	Shri Shivaji Science College, Amravati	vaishnaviakolkar2000@gmail.co	A
7	<b>Ms. Sakshi P. Thakare</b>	Shri Shivaji Science College, Amravati	sakshi.thakare@gmail.com	A+
8	<b>Ms. Monali S. Dapurkar</b>	Shri Shivaji Science College, Amravati	monalidapurkar20@gmail.c	A+
9	<b>Mr. Tejas A. Thakare</b>	Shri Shivaji Science College, Amravati	tejasthakare8442@gmail.co	A+
10	<b>Ms. Sakshi R. Zade</b>	Shri Shivaji Science College, Amravati	sakshizade600@gmail.com	A+
11	<b>Ms. Nikita D. Rewalani</b>	Shri Shivaji Science College, Amravati	nikitarewani@gmail.com	A+
12	<b>Ms. Pallavi A. Belsare</b>	Shri Shivaji Science College, Amravati	pallavibelsare44@gmail.co	A+
13	<b>Ms. Samiksha N. Chorode</b>	Shri Shivaji Science College, Amravati	samikshachorode897@gm	A
14	<b>Ms. Poonam G. Bakhade</b>	Shri Shivaji Science College, Amravati	bakhadepoonam7@gmail.c	A+
15	<b>Ms. Shraddha V. Werulkar</b>	Shri Shivaji Science College, Amravati		A+
16	<b>Ms. Vishkha V. Tayade</b>	Shri Shivaji Science College, Amravati	vishkhatayade077@gmail.	A
17	<b>Ms. Mayuri P. Kavitar</b>	Shri Shivaji Science College, Amravati	mayurikavitar199@gmail.c	A+

18	<b>Mr. Dipak A. Maldhure</b>	Shri Shivaji Science College, Amravati	dipqkmaladhur@gmail.com	A+
19	<b>Mr. Akshay P. Dhurve</b>	Shri Shivaji Science College, Amravati	akshaydhurve7887@gmail.com	A+
20	<b>Mr. Bhushan S. Belsare</b>	Shri Shivaji Science College, Amravati	belsarebhushan99@gmail.com	A+
21	<b>Ms. Shivani R. Thakur</b>	G.V.I.S.H., Amravati	Shivthakur2496@gmail.com	A+
22	<b>Ms. Radhika P. Sherje</b>	G.V.I.S.H., Amravati	radhikasherje45678@gmail.com	A+
23	<b>Mr. Amar S. Dahane</b>	G. S. Tompe Arts, Commerce Science College, Amravati	amardahane1998@gmail.com	A+
24	<b>Mr. Rushikesh R. Tathe</b>	Vidya Bharati Mahavidyalaya Amravati	rushitathe16@gmail.com	A+
25	<b>Mr. Swapnil G. Tale</b>	Vidya Bharati Mahavidyalaya Amravati	taleswapnil712@gmail.com	A
26	<b>Ms. Monali S. Tatte</b>	Shri Shivaji Science College, Amravati	monatatte@gmail.com	A+
27	<b>Ms. Ashwini M. Shahakar</b>	Shri Shivaji Science College, Amravati	Ashwinishahakar07@gmail.com	A
28	<b>Ms Nilima S. Keche</b>	Shri Shivaji Science College, Amravati	nilimakeche99@gmail.com	A+
29	<b>Ms. Laxmi A. Gawande</b>	Shri Shivaji Science College, Amravati	Laxmigawande3016@gmail.com	A+
30	<b>Mr. Pravin V. Meshram</b>	Shri Shivaji Science College, Amravati	pmeshram2211@gmail.com	A+
31	<b>Ms. Pallavi V. Shende</b>	Vidya Bharati Mahavidyalaya Amravati	pallavivshende@gmail.com	A+
32	<b>Ms. Rajashri V. Sukalkar</b>	Vidya Bharati Mahavidyalaya Amravati	rajshrisukalkar@gmail.com	A+
33	<b>Ms. Pranali P. Hiwase</b>	Shri Shivaji Science College, Amravati	Pranalihiwase01@gmail.com	A+
34	<b>Ms. Shrutika S. Wankhade</b>	Shri Shivaji Science College, Amravati	wshrutika4@gmail.com	A+

Dr. Shrikant A. Wadhwal  
Course Coordinator

Dr. G. N. Chaudhari  
, Head & Principal,  
Dept. of Chemistry,  
Shri Shivaji Science College,  
Amravati-444 605 (M.S.)

## PERMISSION LETTER

To,  
**The Principal,**  
Shri Shivaji Science College Amravati

Subject: To seek permission to organize Hands on Training Course on " Advanced Instrumentation and their Practical Applications for UG and PG students"

Respected sir,

With reference to the above subject I would like to request you to grant permission to organize Hands on Training Course on "Advanced Instrumentation and their Practical Applications for UG and PG students" by Department of Chemistry, Shri Shivaji Science College, Amravati from 28<sup>th</sup> March to 3<sup>rd</sup> April 2022. The admission fee for above course is Rs 1500/- per student.

Thanking you

Date: 24/03/2022

Co-ordinator,



**Dr Shrikant A. Wadhal**  
Professor,  
Department of Chemistry

Forwarded  


Permitted  
J.A.C.  
25/03/2022

SHRI SHIVAJI SCIENCE COLLEGE, AMRAVATI

SIX DAY HANDS ON TRAINING COURSE ON

"ADVANCED INSTRUMENTATION TECHNIQUES AND THEIR PRACTICAL

APPLICATIONS FOR PG AND RESEARCH STUDENTS"

ORGANIZED BY DEPARTMENT OF CHEMISTRY

DATE: 28/03/2022 TO 02/04/2022

LIST OF PARTICIPANTS AND ATTENDANCE

S. No.	Name	28/03/22	29/03/22	30/03/22	31/03/22	01/04/22	02/04/22
1	Ms. Bhargavi A. Narsekar	Bhargavi	Bhargavi	Bhargavi	Bhargavi	Bhargavi	Bhargavi
2	Ms. Vaishnavi S. Saraf	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi
3	Ms. Gauri R. Thakare	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri
4	Ms. Dnyaneshwari P. Fale	Dnyaneshwari	Dnyaneshwari	Dnyaneshwari	Dnyaneshwari	Dnyaneshwari	Dnyaneshwari
5	Ms. Riya D. Sagane	Riya	Riya	Riya	Riya	Riya	Riya
6	Ms. Vaishnavi K. Akolkar	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi
7	Ms. Sakshi P. Thakare	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
8	Ms. Monali S. Dapurkar	Monali	Monali	Monali	Monali	Monali	Monali
9	Mr. Tejas A. Thakare	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas
10	Ms. Sakshi R. Zade	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
11	Ms. Nikita D. Rewlani	Nikita	Nikita	Nikita	Nikita	Nikita	Nikita
12	Ms. Pallavi A. Belsare	P.A. Belsare	P.A. Belsare	P.A. Belsare	P.A. Belsare	P.A. Belsare	P.A. Belsare

13	Ms. Samiksha N. Chorode	Samiksha	Samiksha	Samiksha	Samiksha	Samiksha	Samiksha
14	Ms. Poonam G. Bakhade	Poonam	Poonam	Poonam	Poonam	Poonam	Poonam
15	Ms. Shraddha V. Werulkar	Shraddha	Shraddha	Shraddha	Shraddha	Shraddha	Shraddha
16	Ms. Visikha V. Tayade	Visikha	Visikha	Visikha	Visikha	Visikha	Visikha
17	Ms. Mayuri P. Kavithkar	Mayuri	Mayuri	Mayuri	Mayuri	Mayuri	Mayuri
18	Mr. Dipak A. Maldhure	Dipak	Dipak	Dipak	Dipak	Dipak	Dipak
19	Mr. Akshay P. Dhurve	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay
20	Mr. Bhushan S. Belsare	B.S. Belsare	B.S. Belsare	B.S. Belsare	B.S. Belsare	B.S. Belsare	B.S. Belsare
21	Ms. Shivani R. Thakur	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani
22	Ms. Radhika P. Sherje	Radhika	Radhika	Radhika	Radhika	Radhika	Radhika
23	Mr. Amar S. Dahane	Amar	Amar	Amar	Amar	Amar	Amar
24	Mr. Rushikesh R. Tathe	Rushikesh	Rushikesh	Rushikesh	Rushikesh	Rushikesh	Rushikesh
25	Mr. Swapnil G. Tale	Swapnil	Swapnil	Swapnil	Swapnil	Swapnil	Swapnil
26	Ms. Monali S. Tatte	Monali	Monali	Monali	Monali	Monali	Monali
27	Ms. Ashwini M. Shahakar	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini
28	Ms Nilima S. Keche	Nilima	Nilima	Nilima	Nilima	Nilima	Nilima
29	Ms. Laxmi A. Gawande	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi
30	Mr. Pravin V. Meshram	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin
31	Ms. Pallavi V. Shende	Pallavi	Pallavi	Pallavi	Pallavi	Pallavi	Pallavi
32	Ms. Rajashri V. Sukalkar	Rajashri	Rajashri	Rajashri	Rajashri	Rajashri	Rajashri
33	Ms. Pranali P. Hiwase	Pranali	Pranali	Pranali	Pranali	Pranali	Pranali
34	Ms. Shrutika S. Wankhade	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika

Dr. Shrikant A. Wadhal

## CERTIFICATE OF STUDENT



Shri Shivaji Education Society, Amravati's  
**Shri Shivaji Science College, Amravati**

Shivaji Nagar, Morshi Road, Amravati (MS)

NAAC Accredited by Grade 'A' with CGPA of 3.13 (Third Cycle), UGC Awarded Status of College with Potential for Excellence (Second Phase)  
Identified by DST, Govt. of India for FIST and Sant Gadge Baba Amravati University, Amravati as Lead College



**Six Days Hands on Training Course on  
"Advanced Instrumentation Techniques and  
Their Practical Applications for PG and Research students"**

Duration : 28<sup>th</sup> March, 2022 to 2<sup>nd</sup> April, 2022

### CERTIFICATE

*This certificate is awarded to*

**Mr. Shivani R. Thakur**

**Position :** P. G. Student **Affiliation :** G. V. I. S. H. , Amravati

*For the successful completion of the Six Days Hands on Training Course on*

**"Advanced Instrumentation Techniques and Their Practical Applications for PG and Research students"**

*as prescribed and ported by Department of Chemistry during 28<sup>th</sup> March, 2022 to 2<sup>nd</sup> April, 2022.*

*He/She has successfully completed this hands on training course with practical and theoretical knowledge of IR, UV-VIS, , HPLC, ATOMIC ABSORPTION SPECTROPHOTOMETER, XRD INSTRUMENTATION with A+ grade.*

*Sawadhal*

**Dr. Shrikant A. Wadhwal**  
Course Co-ordinator

*ADH*

**Dr. G. N. Chaudhari**  
Head of the Department

*Jac*

**Dr. G. V. Korpe**  
Principal

Grade : 'A+' >=80 , 'A' >=65-79,  
'B' > 50 - 64, No Certificate <50

## CERTIFICATE OF CO-ORDINATOR

	<p>Shri Shivaji Education Society, Amravati's <b>Shri Shivaji Science College, Amravati</b> Shivaji Nagar, Morshi Road, Amravati (MS) NAAC Accredited by Grade 'A' with CGPA of 3.13 (Third Cycle), UGC Awarded Status of College with Potential for Excellence (Second Phase) Identified by DST, Govt. of India for FIST and Sant Gadge Baba Amravati University, Amravati as Lead College</p>	
<p><b>Six Days Hands on Training Course on "Advanced Instrumentation Techniques and Their Practical Applications for PG and Research students"</b></p> <p>Duration : 28<sup>th</sup> March, 2022 to 2<sup>nd</sup> April, 2022</p> <p><b>CERTIFICATE</b></p> <p><i>This certificate is awarded to</i></p> <p><b>Dr. SHRIKANT ASHOKRAO WADHAL</b></p> <p><i>has actively participated in design and development of curriculum on Six Days Hands on Training Course on "Advanced Instrumentation Techniques and Their Practical Applications for PG and Research students" conducted by the Department of Chemistry during 28<sup>th</sup> March, 2022 to 2<sup>nd</sup> April, 2022.</i></p>		
 <b>Dr. G. N. Chaudhari</b> Head of the Department	 <b>Dr. W. S. Barde</b> IQAC Co-ordinator	 <b>Dr. G. V. Korpe</b> Principal