



Directorate of Outcome

Outcome Report (Workshop Organized @ AUH)

1. General Information

Date: 17th January 2022- 18th January 2022

Event Type: Workshop

Event Title: International Workshop on “Instrumentation Techniques”

Event Theme: International Collaborative Workshop

Venue: Online Workshop at MS Teams

Web/Video Link of the Event: <https://amityuni.live/86126582794>

Organized by: Amity University, Haryana

In collaboration with: University of Bengkulu, Indonesia

Event Level: Institutional/State/National/International

Event Coordinator(s) with designation: Dr. Monika Vats (AP, CBFS, ASAS, AUH)

Dr. Sal Prima Yudha (University of Bengkulu, Indonesia)

Details of Expert/Speaker/Resource Person/Judge:

S N	Country Name	Expert Name	Organization Name	Designation	Specialization	Contact No.	E-mail Id	CV of Expert (Yes/No)	Major Areas where Amity can Collaborate with expert	Recommended by
1	Indonesia	Dr. Sal Prima Yudha	University of Bengkulu	PI, Universitas Bengkulu, Department of Chemistry, Bengkulu, Indonesia	UV-Visible Spectroscopy	+62-736-20919	salprima@unib.ac.id	Yes	Instrumentation	Dr. Monika Vats
2	India	Dr. Mohamud Abid	Jamia Milia Islamia	Assistant Professor	Structure-based drug design	+91-8750295095	mabid@jami.ac.in	Yes	Structure-based drug design	Dr. Monika Vats

Criteria of Inviting Resource Person/Judge/Speaker/Judge (Write a paragraph):

MOU done with Universitas Bengkulu, Department of Chemistry; Bengkulu, Indonesia

Were the guest known in advance and if yes, from what previous interaction (Write a paragraph)?

The guest lecture and instrumentation technique workshop were organised in December 2019 and December 2020 with Dr. Sal Prima Yudha.

2. Outcome of the Event with Time Lines (Proposed/Achieved)

Envisaged Outcome	Tangible/ Intangible	Achieved / Proposed	Target date & responsibilities (if proposed)	Details of outcome
1. Outcome related to Academia Connect				
a) Collaborations for Research Papers/Conference Papers/ Book Chapter etc.		<i>Achieved</i>		1. One book chapter published 2. One Review article submitted
b) Collaborations & MOU for Research Guidance [PhD, PG & UG (summer training, Dissertation)] & Projects/Use of Instruments etc.		<i>Achieved</i>		<i>MOU Between University of Bengkulu, Indonesia and AUH</i>
c) Collaboration for Funded Projects			<i>Proposed</i>	<i>Targeting for a research project by May 2022</i>
2. Outcome related to Industry Connect				
a) Placement	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
b) Collaborations for Research Papers	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
c) Collaborations & MOU for Research Guidance [PhD, PG & UG (summer training, Dissertation)] & Projects/Use of Instruments	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
d) Collaboration for	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>

Funded Projects				
3. Outcome related to Society Outreach				
a) Benefit to society in terms of Health & Hygiene	NA	NA	NA	NA
b) Benefit to society in terms of Education	NA	NA	NA	NA
4. Outcome related to Students Learning & Grooming				
The students learnt about UV spectroscopy and flash chromatography			<i>proposed</i>	<i>Workshop</i>
5. Any other				

3. Event Report along with glimpses of the event







**Universitas Bengkulu
Indonesia**

**Amity University
Haryana**

International Workshop on "Instrumentation Techniques"

17-18 January, 2022

Amity University Haryana (NAAC A-Grade University) and Universitas Bengkulu
Indonesia organise a two-day International Collaborative Workshop

Two day workshop **INSTRUMENTATION TECHNIQUES** organized by Department of Chemistry, Biochemistry and Forensic Science, Amity School of Applied Sciences (CBFS, ASAS), Amity University, Haryana, India in collaboration with Faculty of Mathematics and Natural Sciences, University of Bengkulu, Indonesia.

It is an extension activity of an MOU signed between the two organizing universities.

Universitas Bengkulu, Indonesia

University Bengkulu, Bengkulu is a public university in Bengkulu, Indonesia. It was established on 24 April 1982. University offers UG and PG courses in 7 different streams. Officially recognized by the Kementerian Riset dan Teknologi/Badan Riset dan Inovasi Nasional, Republik Indonesia.

Amity University Haryana

Amity University Haryana, Gurugram is situated in the picturesque, 110 acre Amity Education Valley, in the close proximity of Gurugram. AUH is built on a foundation which embodies all the qualities that have made Amity institutions world-class over the last two decades. The university has students from more than 15 countries.

CBFS, ASAS, AUH

The Department of Chemistry, Biochemistry & Forensic Science (CBFS) has successfully charted a glorious journey of over 7 years under the aegis of ASAS, AUH. Amity School of Applied Sciences (ASAS) was inaugurated on the occasion of National Science Day on 28 Feb 2013 with a mission of imparting quality teaching and promoting science through research and extension. ASAS strives continually to lay a strong foundation in Applied Sciences and to equip the students of other disciplines to carry out practical applications of their knowledge. Further, the vision is set for carrying out research in emerging areas of societal importance, along with offering degree programs at undergraduate, masters and doctoral level in the relevant subjects of Applied Sciences, including Chemistry, Biochemistry and Forensic Science, Physics, and Mathematics.

ORGANISING COMMITTEE 17-18 JANUARY 2022

Chief Patrons

Dr. Ashok K. Chauhan, Founder President
Dr. Aseem Chauhan, Chancellor, AUH

Patrons

Prof. (Dr.) P.B. Sharma, Vice Chancellor, AUH
Prof. (Dr.) Padmakali Banerjee, Pro Vice Chancellor, AUH

Conveners

Prof. A. K. Yadav, HOI, ASAS, AUH
Prof. S. R. Pathak, HOD, CBFS, ASAS, AUH

Coordinators

Dr. Monika Vats (India)
Dr. Sal Prima Yudha (Indonesia)

Committee Members

Dr. A. Sharma, Dr. D. Vaya, Dr. Bhuvnesh Yadav,
Dr. Sudip Majumder & Dr. G. S. Bumrah

Student Coordinators

Bharti Sheokand (Research Scholar)
Taruna Lodhi (Research Scholar)

Eminent Speakers



Dr. Sal Prima Yudha
University of Bengkulu
Indonesia



Dr. Mohammad Abid
Jamia Millia Islamia
India

Tutorial session and Demonstration of UV-Vis Spectroscopy by Dr. Prima Yudha (University of Bengkulu, Indonesia)

Tutorial session and Demonstration of UV-Vis Spectroscopy by Dr. Mohammed Abid (Jamia Milia Islamia, New Delhi)

Program Schedule

17-18 January 2022

Monday		17-01-2022
Time Indian Standard Time (IST)	Topic	Speaker
10:00 – 10:05 HRS	Welcome Address	Prof A.K. Yadav (Director, ASAS, AUH, Gurugram)
10:05 – 10:10 HRS	Words of Wisdom	Prof. (Dr.) Padmakali Banerjee (Pro Vice Chancellor, AUH)
10:10 – 10:15 HRS	Words of Wisdom	Assoc. Prof. Jarulis (Dean of Faculty of Mathematics and Natural Sciences, University of Bengkulu Indonesia)
10:15 – 10:55 HRS	Tutorial session on UV-Vis Spectroscopy	Dr. Sal Prima Yudha (University of Bengkulu Indonesia)
10:55 – 11:30 HRS	Demonstration of UV-Vis Spectroscopy	Dr. Sal Prima Yudha (University of Bengkulu Indonesia)
15:05 – 15:55 HRS	Tutorial session on Principle and applications of Flash Chromatography	Dr. Mohammad Abid (Jamia Millia Islamia, New Delhi)
15.55 – 16:30 HRS	Live demonstration of Flash Chromatography	Dr. Mohammad Abid (Jamia Millia Islamia, New Delhi)
16:30 – 16:35 HRS	Vote of Thanks	Prof. S R Pathak (HOD, Dept. CBFS, ASAS, AUH)
Tuesday		18-01-2022
10:00 – 10:15 HRS	Highlights and Review of Workshop	Dr. Monika Vats (AP, CBFS, ASAS, AUH)
10:15 – 11:45 HRS	Workshop Based Quiz & Evaluation	Committee Members
11:45 – 12:00 HRS	Certificate Distribution & Feedback Session	Committee Members

*Attendance in all sessions and submission of feedback form is mandatory for e-certificate

DAY 1

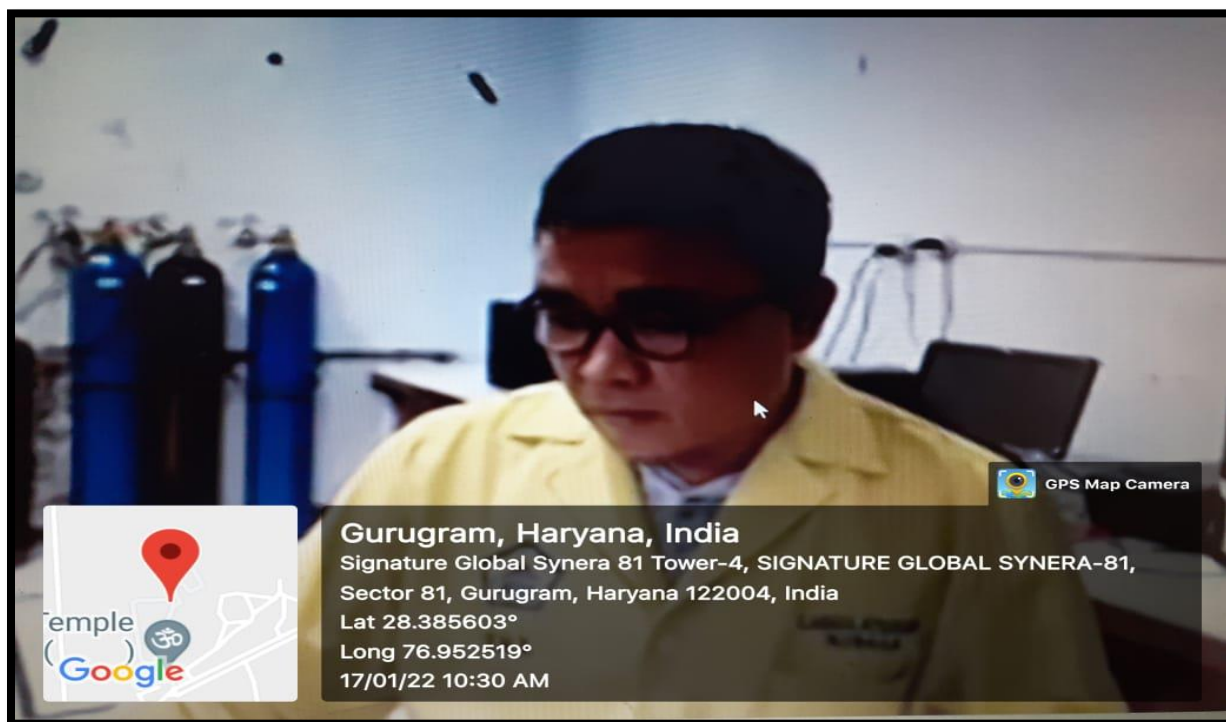
17th JANUARY 2022

The session began with the welcome address by Prof A.K. Yadav (HOI, ASAS,AUH). Dr. Jarulis, Dean of Faculty of Mathematics and Natural Science, University of Bengkulu, Indonesia addressed the participants. A brief introduction of speakers : Dr. Sal Prima Yudha (Faculty, University of Bengkulu, Indonesia) and Dr. Mohammad Abid (Jamia Milia Islamia, New Delhi) was given. The session was coordinated by the Moderator Dr. Anurag Sharma and well supported by Prof. Seema R. Pathak (HOD, CBFS, ASAS, AUH) and faculty members of CBFS,ASAS, AUH.

- **TOTAL NUMBER OF ACTIVE PARTICIPANTS- 80**

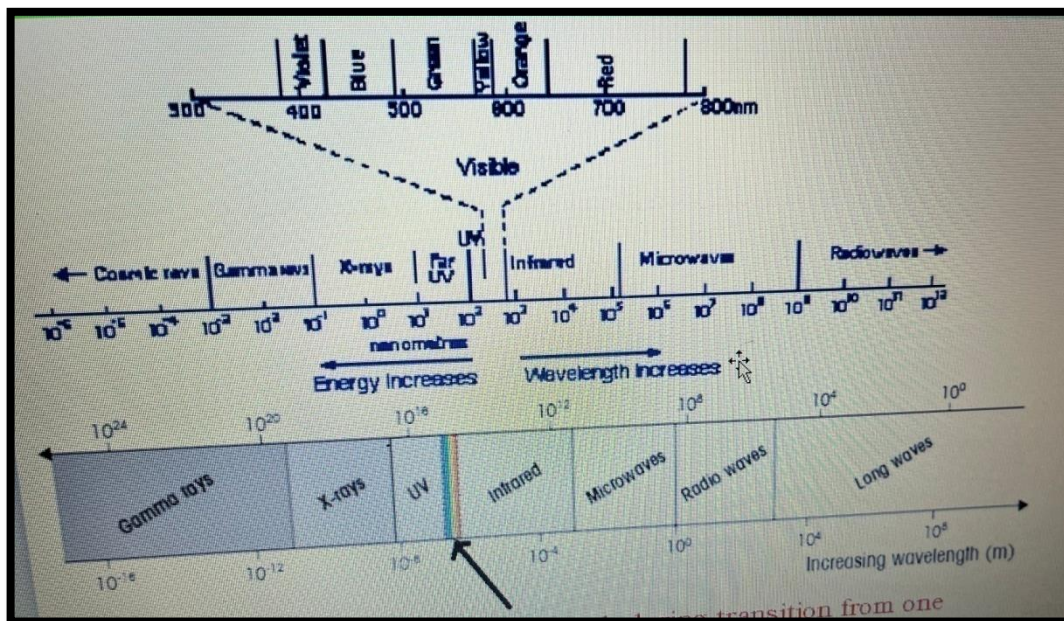
Topic: Principal, Working and Application of UV- Visible Spectroscopy and Live Demonstration of UV-Visible Spectrophotometer

Speaker: Dr. Sal Prima Yudha (Faculty, University of Bengkulu, Indonesia)



The day's workshop was split into two parts: a lesson and a live demonstration. The tutorial begins with a fundamental overview of UV-Vis spectroscopy, its application in various fields, and the underlying operating principle. UV-Vis Spectroscopy is non-invasive, cost-effective,

sensitive, and adaptable. The energy of a wave of a particular radiation is calculated by using the relation $E=hc/\lambda$



In organic comp

ounds the following electronic transitions can occur by the absorption of ultraviolet and visible light:

σ to σ^*

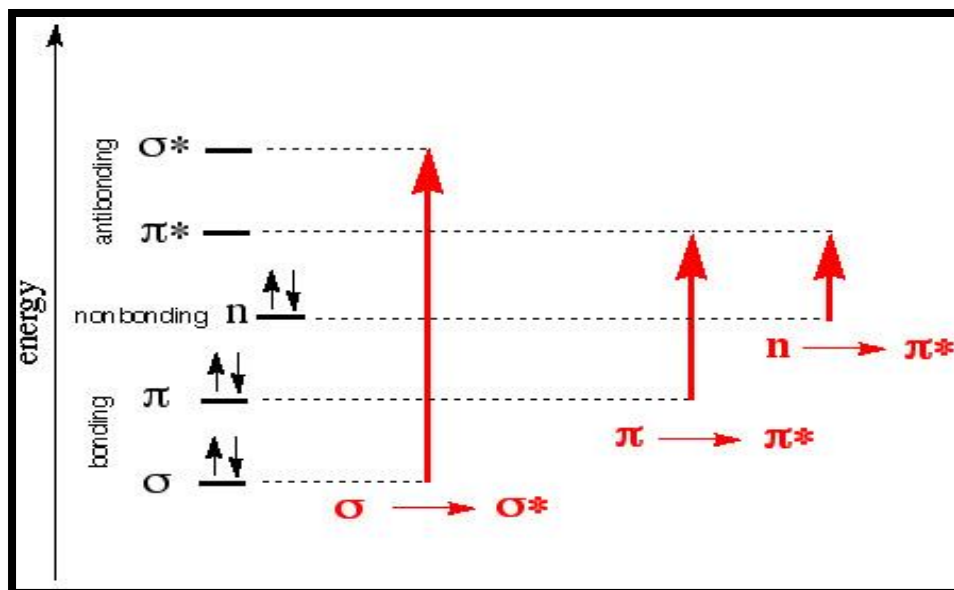
n to σ^*

n to π^*

TRANSITION TYPE IN ORGANIC COMPOUNDS

The transitions involved in this kind of transitions are :

- π - π^* (pi to pi star transition).
- n - π^* (n to pi star transition).
- σ - σ^* (sigma to sigma star transition).
- n - σ^* (n to sigma star transition)

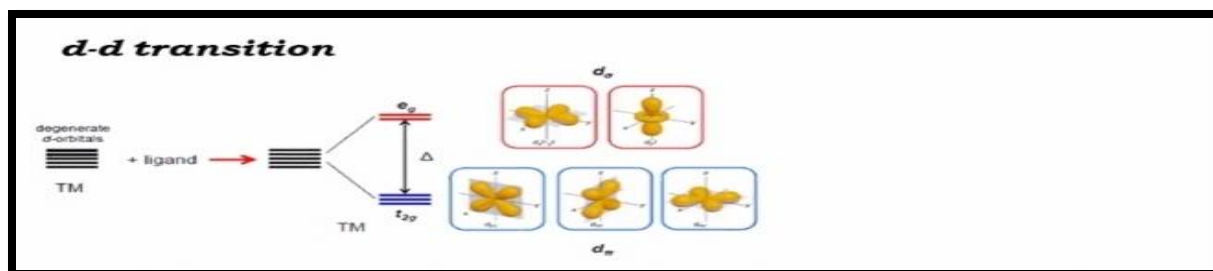


Alkenes, alkynes, carbonyl, nitriles, aromatic compounds, and other compounds with multiple bonds go through the $\pi \rightarrow \pi^*$ transition. e.g.: Alkenes absorb light in the range of 170-205 nm. An electron is promoted from a non-bonding orbital to an anti-bonding orbital. Such transitions occur in compounds with a double bond incorporating hetero atoms (C=O, N=O). The $n \rightarrow \pi^*$ transitions are low-energy transitions that display absorption at longer wavelengths about 300 nm.

The following were the subjects that were discussed in greater depth throughout the session:

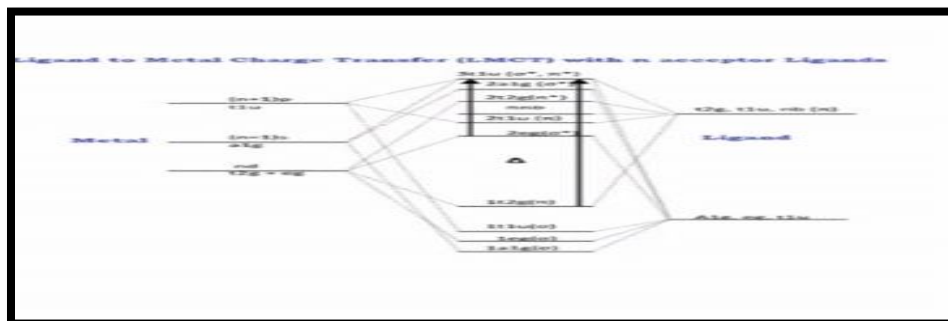
- **The d-d transition for acceptor – Ligand complex.**

The d-d transition for pi acceptor ligand complex is larger than the pi-donor ligand. These transitions generally appear as of weak intensity in the spectrum as they are Laporte forbidden. Due to vibronic coupling and relatively low energy of transition, they can emit visible light upon relaxation and that is the reason for which many transition complexes are brightly colored. The molar extinction coefficients of these transitions around 100.



- **Ligand to Metal transfer With Acceptor Ligands.**

The LMCT transitions arise because of the low lying energy of the ligand orbitals. Therefore this is a transition from orbital that are ligand in character to orbitals that are more metal in character. The electron travels from a bonding or non bonding orbital into anti-bonding orbital. These transitions are very strong and appear very intensely in the absorbance spectrum. The molar extinction coefficients for these transitions are around 10^4 . The examples for pi donor ligands are F^- , H_2O , OH^- , RS^- , NCS^- etc.

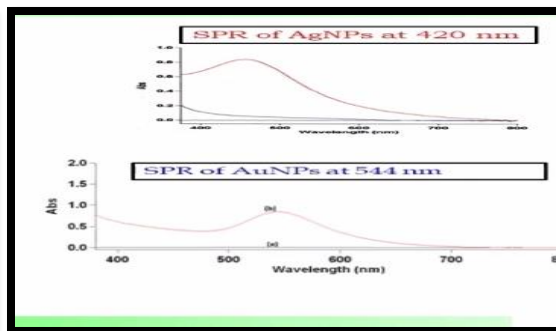
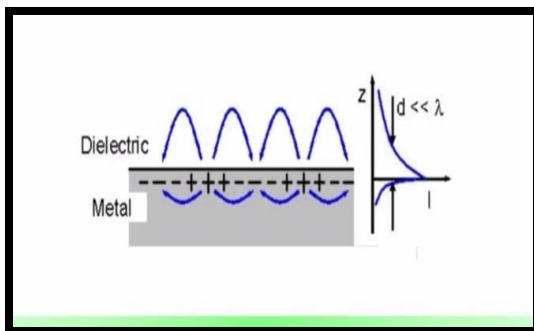


- **Metal Ligand Charge transfer (MLCT) with pi donor Ligands:**

These transitions arise from pi acceptor ligands and metals that are willing to donate electrons into the orbitals of ligand character. Both types of charge transfer bands are more intense than d-d bands since they are not Laporte rule forbidden. E.g. of pi accepting ligands are CO , NO , RNC , $C=C$ etc.

- **Surface Plasmon Resonance (SPR) :**

Surface Plasmon Resonance (SPR) is a resonance between light wave and the electrons on a metal surface which generates oscillations the electrons in the metal surface is quantized i.e. wavelength of light is in resonance with Surface Plasmon Oscillation. The requirements for SPR are materials with free electrons (metals such as Cu , Ag , Au) with their plasma frequency in both UV and Visible region and the interface.

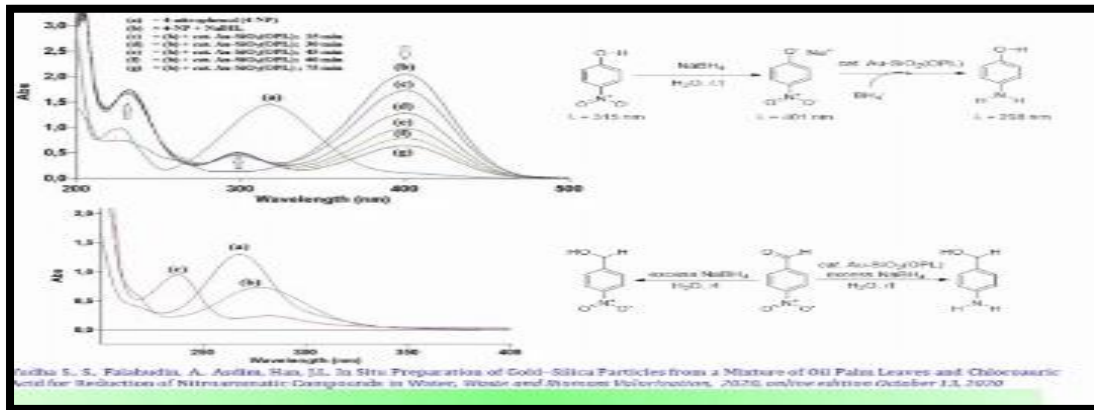


- **Main principles behind UV-Visible Spectroscopy:**

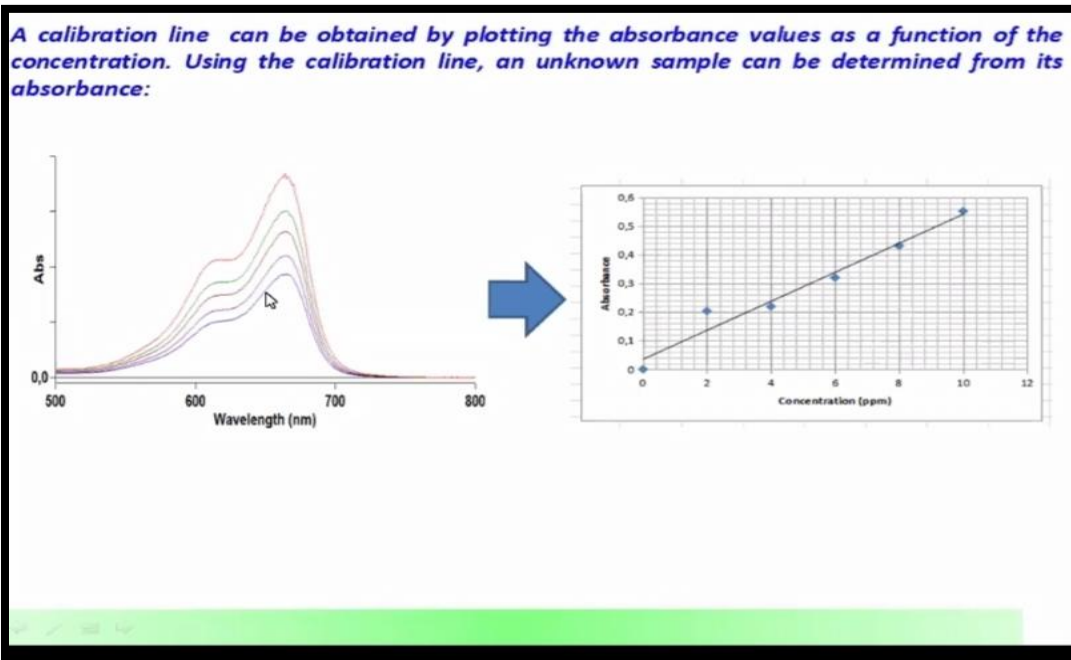
Optical spectroscopy is based on the interaction of light with matter. UV/VIS spectroscopy is a technique based on the absorption of light by an unknown sample. The main principles involved in this technique are as follows:

1. The sample is illuminated with electromagnetic rays of various wavelength.
2. The light is partially absorbed, depending on the substance. The remaining transmitted light is detected and recorded as a function of wavelength by detector, giving the UV/VIS spectrum.

- **Sample applications- Qualitative analysis- Organic Compounds**

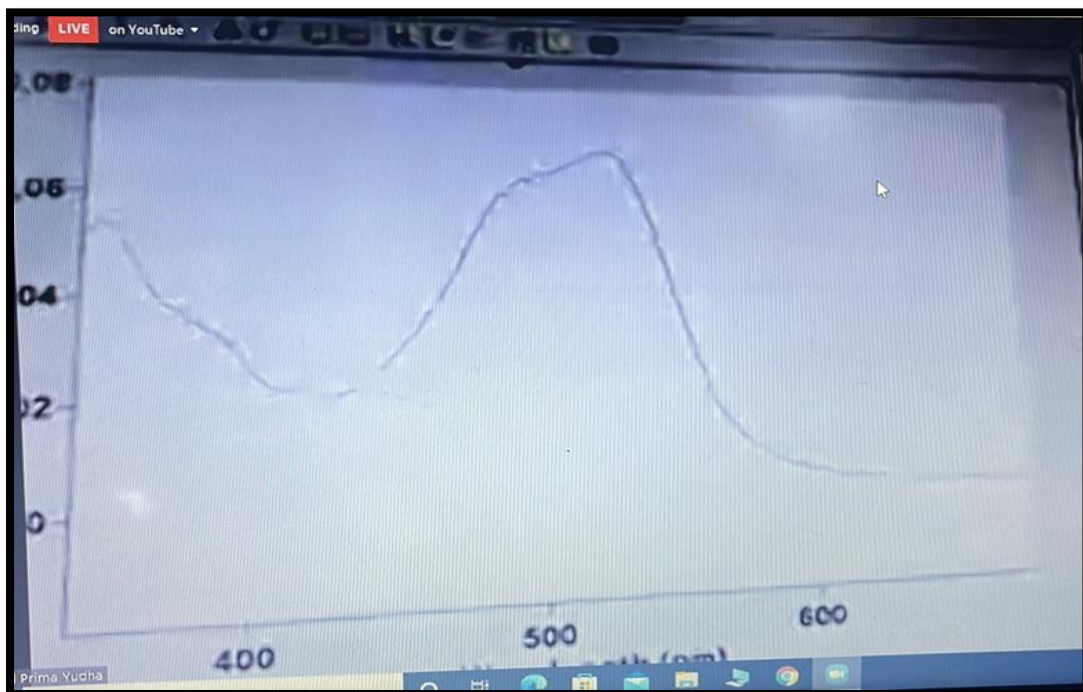


A calibration line can be obtained by plotting the absorbance values as a function of the concentration. Using the calibration line, an unknown sample can be determined from its absorbance:



Every substance absorbs light in a different way. A unique and specific relationship exists between the substance and its UV/VIS spectrum. Therefore the spectrum can then be used to identify or quantify a substance

After the tutorial session, a demonstration of UV Vis spectroscopy was given using a Cary-60 UV-Vis Spectrophotometer, with the various parts, functions, and spectrum generation explained while a sample was run.



2nd SESSION

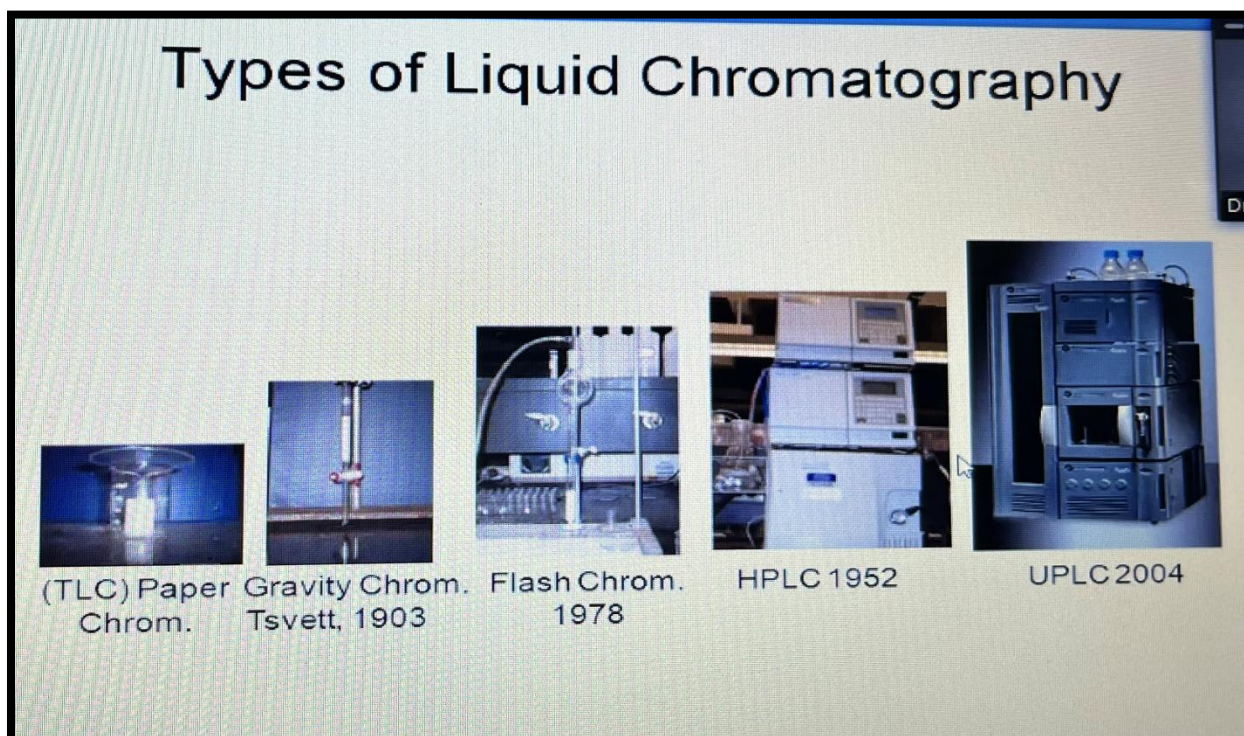
At 3:00 p.m. (IST), the session began Dr. Mohammad Abid was the session's speaker (Jamia Milia Islamia, New Delhi). Dr. Anurag Sharma moderated the session, which was well-coordinated by Prof. Seema R. Pathak (HOD, CBFS, ASAS, AUH) and all of the ASAS department's academic members and Dr. Sal Prima Yudha, a panellist, were present.

TOPIC: FLASH CHROMATOGRAPHY- PRINCIPLE AND APPLICATIONS

SPEAKER: Dr. Mohammad Abid (Jamia Milia Islamia, New Delhi)



The day's workshop was split into two parts: a lesson and a live demonstration on Flash Chromatography and its principle and applications. The session started with the general introduction on Liquid chromatography.



VARIOUS FORMS OF CHROMATOGRAPHY

- Column chromatography
 - Prep Column Chromatography
 - Ion Exchange Chromatography
 - Gel chromatography
- Pressure liquid chromatography
 - Low pressure liquid chromatography
 - Medium pressure liquid chromatography
 - High pressure liquid chromatography
- Normal phase and reversed phase chromatography

Introduction of sample

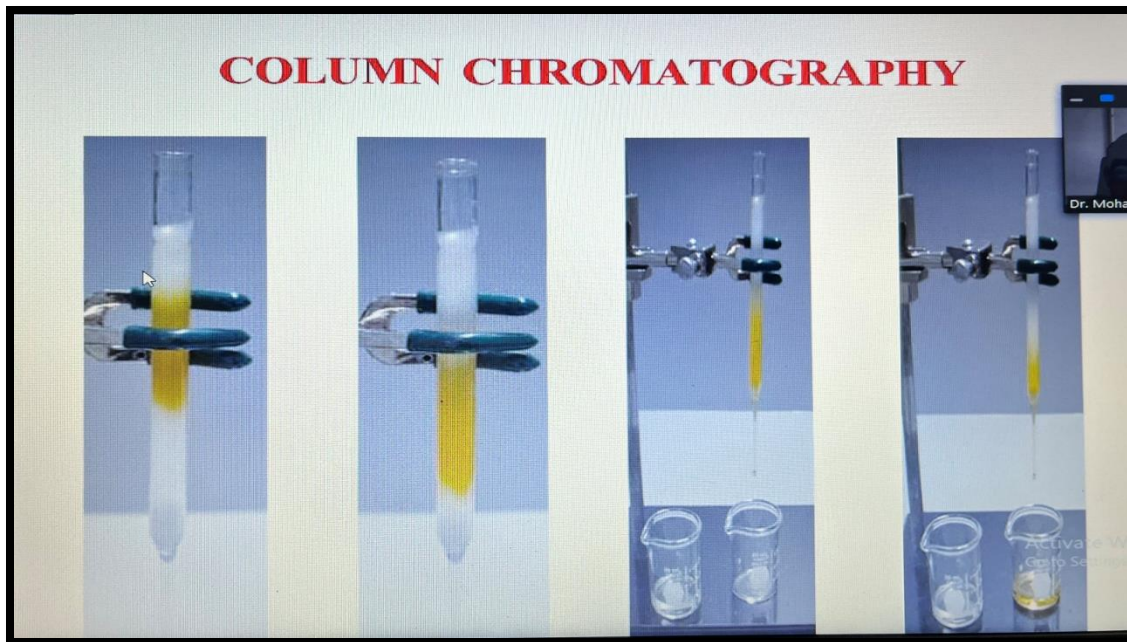
- The sample which is usually a mixture of components is dissolved in minimum quantity of the mobile phase.
- The entire sample is introduced into the column at once and get adsorb on the top portion of the column
- From this zone, individual sample can be separated by a process of elution.

1. WET PACKING TECHNIQUE

➤ Ideal and common techniques

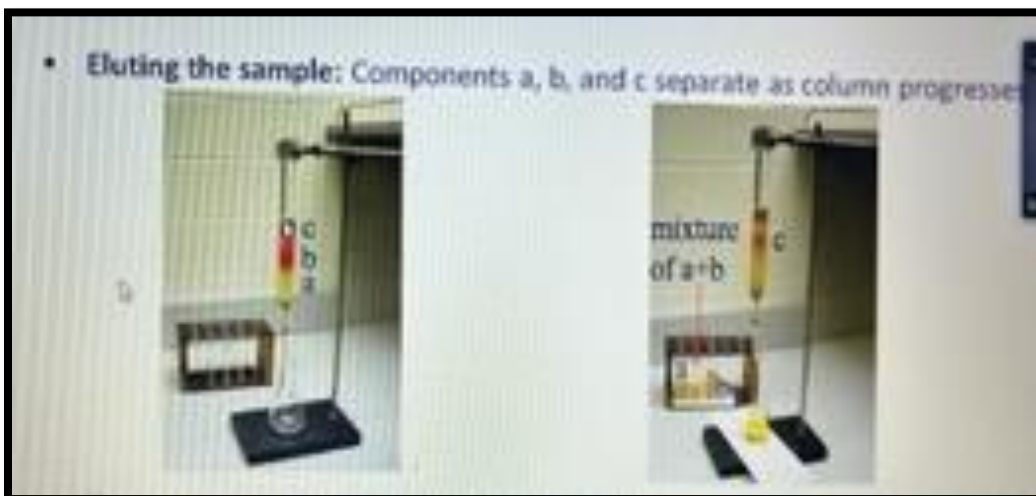
The material is slurred with the solvent and generally added to the column in portions. Solid settles down while the solvent remain upward. This solvent is removed then sea sand id placed.

- The stationary phase settles uniformly in the column and there is no entrapment of the air bubbles.
- There will not be any crack in the column of adsorbent.
- The bands eluted from the the column will be uniform and ideal for separation.



2. GRADIENT ELUTION TECHNIQUES

- Solvents of gradually \uparrow polarity or \downarrow elution strength are used during the process of separation.
- Initially low polar solvent is used followed by gradually increasing the polarity.
- For example: initially benzene. Then chloroform then ethyl acetate then chloroform.



- Fractions can be collected in test tubes, vials, beakers or Erlenmeyer flasks.

- Recovery is done by collecting different fractions of mobile phase of equal volume like 10 ml, 20ml etc or unequal volume.
- The can also be collected time wise i.e. a fraction for every 10 min or 20 min etc. The recovered fractions are detected by using different techniques.

INTRODUCTION

- The term Flash Chromatography was coined in 1978 by W. Clark Still and co workers of Columbia University to describe separations in which a gas- pressurized solvent reset is used to accelerate solvent and achieve superior chemical separations in less than traditional gravity- based column chromatography.
- Flash chromatography is currently one of the most popular techniques for purifying pharmaceuticals intermediated as well as final organic products. It is also widely used natural products research.
- Flash chromatography differs from the conventional Techniques in two ways:
 - 1) Slightly smaller silica gel particles (259-400 mesh) are used.
 - 2) Due to restrict flow of solvent caused by the smaller gel particles, pressurized gas (ca. 10-15 psi) is used to drive the solvent through the column of stationary phase. The net result is rapid and high resolution chromatography.

PRINCIPLE OF FLASH CHROMATOGRAPHY

- The basic principle is that the elution is, under gas pressure rapidly pushed through short glass column with large inner diameter. The glass column is packed with an adsorbent of defined size.
- Silica gel 40-63 um is the most stationary phase but we can use other paticle size also.

Selection of stationary phase

- SILICA: slightly acidic medium. Best for ordinary compound, good separation is achieved.
- FLORISIL: mild, neutral medium, 200 mesh can be effective for easy separations. Less than 200 mesh best for purification by filtration.
- ALUMINA: Basic or neutral medium. Can be effective for easy seperations and purification of amines.
- REVERSE PHASE SILICA: the most polar compounds elute fastest, the most non polar slowest.

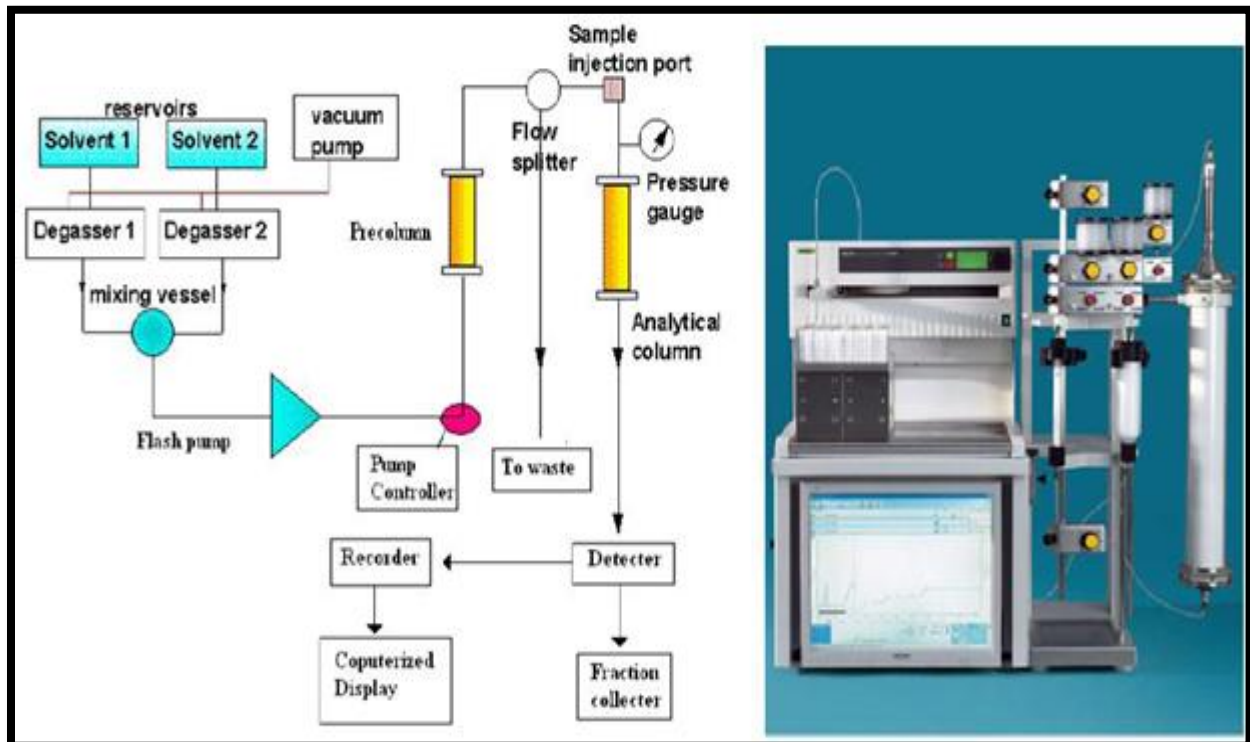
SOLVENT SYSTEM FOR FLASH CHROMATOGRAPHY

Flash column chromatography is usually carried out with a mixture of two solvents (polar and non-polar).

- One- compound solvent system
 - 1) Hydrocarbons: pentane, hexane
 - 2) Ethyl acetate
 - 3) Dichloromethane

- Two- compound solvent system
 - 1) Methanol/ Dichloromethane
 - 2) Ethyl Acetate/ Hexane

INSTRUMENTS FOR FLASH CHROMATOGRAPHY



APPLICATIONS OF FLASH CHROMATOGRAPHY

Natural products/ Nutraceuticals applications

- A. Separation and isolation of α -Santalol and β - Santalol from sandalwood extraction.
- B. Isolation and purification of chromophoric and nonchromophoric compounds in giant knotweed rhizome.
- C. Isolation and purification of flavonoids from ginkgo biloba leaves extract.
- D. Isolation and purification of catechins from green tea extracts.
- E. In purification of GallaChinensis.
- F. Purification of Ferulic Acid in RhizomaChuanxiong Extract.

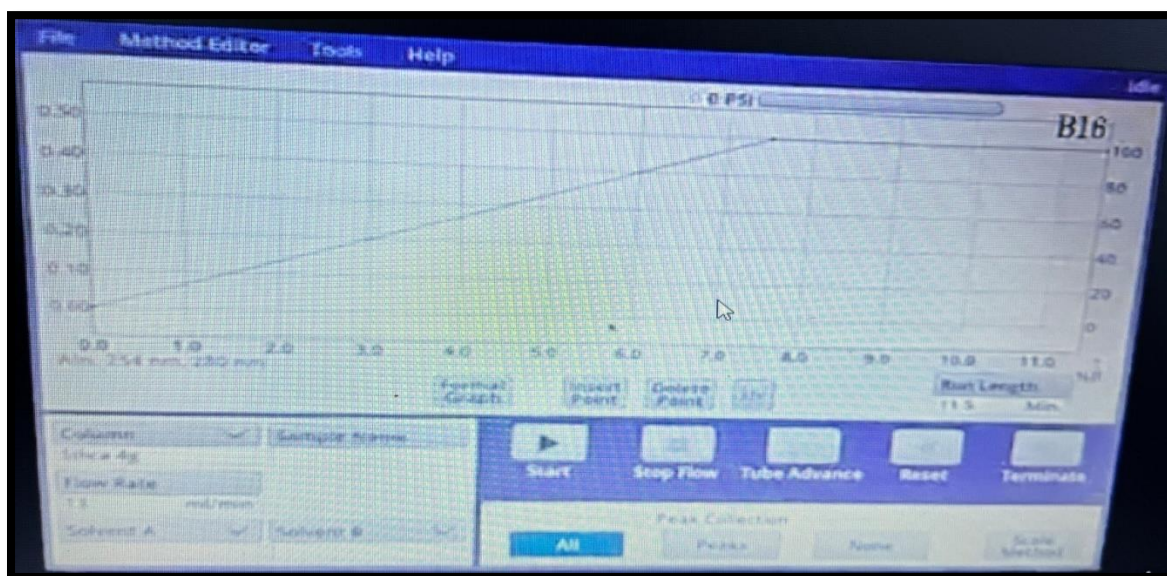
CONCLUSION

Purification of drug is an important step in any branch of research. Preparative chromatography is used to separate the components of a mixture for more advanced use and is thus a form of purification. Flash chromatography can be an alternative to preparative HPLC as it saves time and solvent. Extrapolation of TLC results on a preparative scale can be achieved by Flash chromatography. Modern Flash chromatography with disposable cartridges and advanced detection techniques is applicable to a wide range of compounds.

After this tutorial session Dr. Mohammad Abid (Jamia Milia Islamia, New Delhi) gave the demonstration with the help of his Co-worker on Flash chromatography.



Some highlights of his demonstration are:



The session ended with a slew of questions from both the audience and the panelists, demonstrating the high level of curiosity generated by the fantastic presentation. Overall, the workshop provided participants with significant experience in doing experimental research. Prof. Seema R. Pathak and Prof. A.K. Yadav gave a vote of gratitude at the end of the event.

Recording LIVE on YouTube

Dr. Mohammad Abid

Dr. Sal Prima Yudha

Dr. Anurag Sharma

GPS Map Camera

Dr. Bhunesh Yadav

Gurugram, Haryana, India
 Amity University Gurugram, Haryana 122015, India
 Lat 28.319308°
 Long 76.913485°
 17/01/22 04:31 PM

Amity University Gurugram Google

Recording LIVE on YouTube

Dr. Mohammad Abid

Dr. Anurag Sharma

Prof. S R Pathak

GPS Map Camera

Dr. Sal Prima Yudha

Gurugram, Haryana, India
 Amity University Gurugram, Haryana 122015, India
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 Long 76.913485°
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Amity University Gurugram Google

DAY 2

(18TH JANUARY 2022)

The session began at 10:00 AM (IST) by giving the highlights and reviews of the workshop by Dr. Monika Vats (AP, CBFS, ASAS, AUH). After this workshop based quiz and evaluation was done from 10:15- 11:45 AM (IST). Feedback form was filled by all the attendees.

Session ended with the thank you note from Prof. Seema R. Pathak and Prof. A.K. Yadav.

ATTENDANCE SHEET

17TH JANUARY 2022

Meeting ID	86126582794
Topic	TWO-DAYS WORKSHOP ON "INSTRUMENTATION TECHNIQUES"
Speaker	Dr. Sal Prima Yudha, University of Bengkulu Indonesia; Dr. Mohammad Abid, Jamia Millia Islamia, New Delhi
Event Start Time	01/17/2022 09:29:36 AM
Event End Time	01/17/2022 04:31:42 PM
Event Duration	423 mnt
Dept/Inst	AUGGN ASAP
HOI/Moderator	Prof. A.K. Yadav, PhD (IIT Delhi), Director, Amity School of Applied Sciences, Amity University Gurgaon
Email	akyadav2@ggn.amity.edu
contact Number	0

Event Name	# Registered	# Attended	Event Date & Time
<u>Two-days workshop on "Instrumentation Techniques"</u>	<u>135</u>	<u>108</u>	17 Jan 10:00AM -

5:00PM

Name	Email Address	Join Time	Leave Time	Total Duration (Minutes)	Guest
Amity University	zoom3@amity.edu	17-01-2022 11:55	17-01-2022 16:31	277	No
Zohri Mahrus	zohrimahrus020599@gmail.com	17-01-2022 12:24	17-01-2022 14:21	118	Yes
Vinita Yadav	yvinita213@gmail.com	17-01-2022 10:13	17-01-2022 11:24	72	Yes
Meenakshi Yadav	yadavmeenakshi360@gmail.com	17-01-2022 15:13	17-01-2022 16:31	79	Yes
Deepika Yadav	yadavdeepika2370@gmail.com	17-01-2022 10:14	17-01-2022 15:06	293	Yes
VAIBHAV VASHISHT	vaibhavforensic@gmail.com	17-01-2022 10:22	17-01-2022 10:44	22	Yes
Tesyah Dwi Anugrah	tesyahdwianugrah@gmail.com	17-01-2022 10:12	17-01-2022 10:53	42	Yes
Tamanna Mehra	tamannamehra2707@gmail.com	17-01-2022 10:12	17-01-2022 11:34	83	Yes
Tanu Allen	tallen@amity.edu	17-01-2022 10:11	17-01-2022 16:26	375	Yes
Km sweta sweta	swetaraghav1999@gmail.com	17-01-2022 10:32	17-01-2022 11:58	87	Yes
SUJIT KUMAR PANDEY	sujitdhn11098@gmail.com	17-01-2022 10:13	17-01-2022 11:30	77	Yes
sujeet pandey	sujeet.pandey@s.amity.edu	17-01-2022 10:40	17-01-2022 15:07	267	Yes
Harsh PANDEY	stark7220@gmail.com	17-01-2022	17-01-2022	70	Yes

		10:14	11:23		
Stanzin Stobjor	stanzin.stobjor@s.amity.edu	17-01-2022 15:10	17-01-2022 16:31	82	Yes
Sohini Singh	ssingh14@amity.edu	17-01-2022 15:27	17-01-2022 16:08	41	Yes
Prof. S R Pathak	srpathak@ggn.amity.edu	17-01-2022 15:13	17-01-2022 16:31	79	Yes
Suniti Purbey	spurbey@rpr.amity.edu	17-01-2022 10:24	17-01-2022 10:25	1	Yes
sindhu sahithi	sindhusahithi9913@gmail.com	17-01-2022 10:12	17-01-2022 12:04	113	Yes
Simran Barawal	simran.barawal@s.amity.edu	17-01-2022 10:12	17-01-2022 11:30	79	Yes
Bharti Sheokand	sheokandbharti123@gmail.com	17-01-2022 14:46	17-01-2022 16:31	106	Yes
Shantanu Rao	shantanu1@s.amity.edu	17-01-2022 15:01	17-01-2022 16:31	90	Yes
Dr. Shakeeluddin Shakeeluddin	schaudhary@gn.amity.edu	17-01-2022 10:21	17-01-2022 11:29	68	Yes
Sharika Yadav	sarika9914@gmail.com	17-01-2022 10:38	17-01-2022 11:23	45	Yes
Rajlakshmi Rajkumari	sanark1239@gmail.com	17-01-2022 14:51	17-01-2022 16:31	100	Yes
Dr. Sal Prima Yudha	salprima@unib.ac.id	17-01-2022 10:08	17-01-2022 11:41	94	Yes
Sakshi Ranjan	sakshi.ranjan393@gmail.com	17-01-2022 15:02	17-01-2022 16:05	63	Yes
Rachana Singh	rsingh2@amity.edu	17-01-2022 10:31	17-01-2022 11:08	37	Yes
Ritika Bhandari	ritikaaa97@gmail.com	17-01-2022 10:26	17-01-2022 11:30	65	Yes

Reva Sharma	revagautam0@gmail.com	17-01-2022 15:19	17-01-2022 16:32	74	Yes
Muhamad Alvin Reagen	reagenalvin@gmail.com	17-01-2022 14:53	17-01-2022 15:50	58	Yes
Rishu Yadav	raohrsh@gmail.com	17-01-2022 10:11	17-01-2022 10:28	17	Yes
Arti Rao	raoarti3398@gmail.com	17-01-2022 15:22	17-01-2022 16:31	70	Yes
Rajeni Kumari	rajeni8947@gmail.com	17-01-2022 10:22	17-01-2022 11:22	60	Yes
Putri Ramanda	putriramanda18@gmail.com	17-01-2022 10:38	17-01-2022 10:40	2	Yes
Purva Batra	purva1025@gmail.com	17-01-2022 15:18	17-01-2022 16:31	74	Yes
Pooja Sapla	pujjasapla3398@gmail.com	17-01-2022 15:21	17-01-2022 16:32	72	Yes
Priya Kumari	priyasehoriya@gmail.com	17-01-2022 15:10	17-01-2022 16:31	82	Yes
Priyanka Machra	priyankamachra2312@gmail.com	17-01-2022 10:19	17-01-2022 12:00	101	Yes
Preeti Yadav	preeti Yadav56585@gmail.com	17-01-2022 15:27	17-01-2022 16:31	65	Yes
Prangya Rath	prangya.rath@student.amity.edu	17-01-2022 11:31	17-01-2022 11:31	1	Yes
Pooja .	pooja2136946@gmail.com	17-01-2022 15:12	17-01-2022 16:31	80	Yes
Priyanka yadav	piyuyadav2410@gmail.com	17-01-2022 10:17	17-01-2022 11:25	68	Yes
Pinky Yadav	pinkyyadav06@gmail.com	17-01-2022 10:16	17-01-2022 11:21	66	Yes
Dr Amita Gaurav	pantamita@rediffmail.com	17-01-	17-01-	76	Yes

Dimri		2022 10:12	2022 11:27		
Naveen kumar	nk29081998@gmail.com	17-01- 2022 15:27	17-01- 2022 15:50	24	Yes
Nidhi Rana	nidhi13rana@gmail.com	17-01- 2022 10:19	17-01- 2022 11:24	65	Yes
Neha	nehapayal2027@gmail.com	17-01- 2022 10:15	17-01- 2022 11:25	71	Yes
Neha Sehrawat	neha10sehrawat@gmail.com	17-01- 2022 10:48	17-01- 2022 11:32	44	Yes
Neeru Yadav	neeruyadav027@gmail.com	17-01- 2022 10:11	17-01- 2022 12:19	128	Yes
NANDLAL CHOUDHARY	nchoudhary@amity.edu	17-01- 2022 12:15	17-01- 2022 14:00	105	Yes
neeta bhagat	nbhagat@amity.edu	17-01- 2022 15:30	17-01- 2022 16:31	62	Yes
Dr. Monika Vats	mvats1@ggn.amity.edu	17-01- 2022 09:33	17-01- 2022 12:31	178	Yes
Muskan Goel	muskan6400@gmail.com	17-01- 2022 10:14	17-01- 2022 11:21	68	Yes
Manish SHANDILYA	mshandilya@ggn.amity.edu	17-01- 2022 15:07	17-01- 2022 16:31	85	Yes
Monika Gautam	mona2120456@gmail.com	17-01- 2022 15:26	17-01- 2022 16:31	66	Yes
Manu Jadon	mjadon796@gmal.com	17-01- 2022 10:35	17-01- 2022 11:30	56	Yes
Metha Amelia	methaameliaa01@gmail.com	17-01- 2022 10:13	17-01- 2022 10:41	29	Yes
Meenu Meenu	meenu.yadav.my89@gmail.com	17-01- 2022 11:03	17-01- 2022 12:11	69	Yes
Mayank Jangra	mayankjangra1929@gmail.com	17-01- 2022	17-01- 2022	3	Yes

		11:19	11:21		
Zinny	mapetdoris@gmail.com	17-01-2022 15:04	17-01-2022 16:31	87	Yes
Mansi Swami	mansiswami15@gmail.com	17-01-2022 15:21	17-01-2022 16:31	70	Yes
Dr. Mohammad Abid	mabid@jmi.ac.in	17-01-2022 10:04	17-01-2022 11:20	77	Yes
Taruna Lodhi	lodhitanu@gmail.com	17-01-2022 15:07	17-01-2022 16:31	85	Yes
Dr. Laxmi Kant Bhardwaj	lkbhardwaj@amity.edu	17-01-2022 13:30	17-01-2022 16:29	180	Yes
Laxmi Devi	laxmi87devi@gmail.com	17-01-2022 15:07	17-01-2022 16:31	85	Yes
Lalit Sharma	lalitsharmag987@gmail.com	17-01-2022 15:17	17-01-2022 16:31	74	Yes
Kurnia Farah Andina	kurniafarahandina@gmail.com	17-01-2022 13:49	17-01-2022 13:51	3	Yes
Shivay Kumar	kumar.shivay07@gmail.com	17-01-2022 10:12	17-01-2022 13:47	216	Yes
krishna gautam	krishna.gautam@s.amity.edu	17-01-2022 15:02	17-01-2022 16:31	89	Yes
Krati Saxena	krati.saxena@s.amity.edu	17-01-2022 15:58	17-01-2022 16:15	18	Yes
Kiran Yadav	kiran12yadav12@gmail.com	17-01-2022 15:01	17-01-2022 16:31	91	Yes
Bibi Shaguftah Khatoon	khatoon.chem@gmail.com	17-01-2022 12:13	17-01-2022 15:01	168	Yes
Juli Mawaty Sinaga	juli05sinaga@gmail.com	17-01-2022 10:54	17-01-2022 11:51	58	Yes
Dr. Jarulis	jarulis@unib.ac.id	17-01-2022 10:47	17-01-2022 11:36	49	Yes

Dr. G S Bhumrah	gsbumbrah@ggn.amity.edu	17-01-2022 14:53	17-01-2022 15:21	28	Yes
Gauri Pandey	gpandey@amity.edu	17-01-2022 10:12	17-01-2022 10:34	23	Yes
Rounak Ghosh	ghoshrounak3@gmail.com	17-01-2022 11:00	17-01-2022 11:26	27	Yes
Garima Sachdeva	garima.sachdeva1009@gmail.com	17-01-2022 14:53	17-01-2022 16:31	99	Yes
Setyo Eko Nugroho	ekonugroho.ene86@gmail.com	17-01-2022 13:54	17-01-2022 13:54	1	Yes
Eka Angasa	eka.angasa@gmail.com	17-01-2022 11:53	17-01-2022 14:02	130	Yes
Dyah Fitriani	dyah.fitriani@unib.ac.id	17-01-2022 11:44	17-01-2022 12:15	32	Yes
Dr. Dipti Vaya	dvaya@ggn.amity.edu	17-01-2022 09:48	17-01-2022 11:29	101	Yes
Duwena Delianti	duwenadelianti06221@gmail.com	17-01-2022 10:12	17-01-2022 10:41	30	Yes
Durga Yadav	durgayadav1809@gmail.com	17-01-2022 10:32	17-01-2022 11:24	52	Yes
Devi Ratnawati	deviratnawati@unib.ac.id	17-01-2022 11:35	17-01-2022 11:35	1	Yes
Arti Deshwal	deswal8151@gmail.com	17-01-2022 15:00	17-01-2022 16:31	91	Yes
Deni Agus Triawan	deni_agust@ymail.com	17-01-2022 15:02	17-01-2022 16:31	90	Yes
Deepti Arya	deepti0903arya@gmail.com	17-01-2022 15:05	17-01-2022 16:31	87	Yes
University of Bengkulu _ Dede Kurniawan	dedekim828@gmail.com	17-01-2022 10:12	17-01-2022 11:23	71	Yes
Dr Bhuvnesh Yadav	byadav@ggn.amity.edu	17-01-	17-01-	110	Yes

		2022 09:45	2022 11:35		
Sheetal Boora	boorasheetal2503@gmail.com	17-01-2022 10:12	17-01-2022 11:20	69	Yes
Barkha Chauhan	barkhachauhan345@gmail.com	17-01-2022 10:24	17-01-2022 10:56	33	Yes
Ayushmaan Datta	ayush.datta@gmail.com	17-01-2022 10:11	17-01-2022 10:35	24	Yes
Atul Yadav	atul.yadav8029@gmail.com	17-01-2022 15:00	17-01-2022 16:04	65	Yes
Ayushi Sharma	ashi.sharma1302@gmail.com	17-01-2022 15:04	17-01-2022 16:31	88	Yes
Dr. Anurag Sharma	asharma6@ggn.amity.edu	17-01-2022 14:52	17-01-2022 16:31	100	Yes
Vivek Saini	aryavivek035@gmail.com	17-01-2022 10:13	17-01-2022 11:36	84	Yes
Anshu Malik	anshumalik2398@gmail.com	17-01-2022 11:02	17-01-2022 11:24	23	Yes
vivo 1723	annunikirai11@gmail.com	17-01-2022 14:50	17-01-2022 16:31	102	Yes
Anjali Dayama	anjaliadayama1998@gmail.com	17-01-2022 10:16	17-01-2022 11:28	72	Yes
(F1B019021) Anisa Nurazmi	anisa.nurazmi14@gmail.com	17-01-2022 11:34	17-01-2022 12:16	42	Yes
Anand Salvi	anandsindu53@gmail.com	17-01-2022 10:12	17-01-2022 11:45	94	Yes
Prof A.K. Yadav	akyadav2@ggn.amity.edu	17-01-2022 09:59	17-01-2022 13:30	212	Yes
Dr. Abhishek Chauhan	akchauhan@amity.edu	17-01-2022 10:42	17-01-2022 11:40	59	Yes
Akansha Yadav	akanshayadav2202@gmail.com	17-01-2022	17-01-2022	55	Yes

		10:33	11:28		
Anil Dubey	adubey@amity.edu	17-01-2022 10:12	17-01-2022 10:38	27	Yes
Aditya Mishra	aditya.mishra1@s.amity.edu	17-01-2022 10:13	17-01-2022 11:21	69	Yes
Shreya Sarkar	9sarkarshreya@gmail.com	17-01-2022 15:13	17-01-2022 16:31	78	Yes

ATTENDANCE SHEET

18TH JANUARY 2022

Meeting ID	<u>86126582794</u>
Topic	TWO-DAYS WORKSHOP ON "INSTRUMENTATION TECHNIQUES"
Speaker	0
Event Start Time	01/18/2022 09:32:56 AM
Event End Time	01/18/2022 11:28:32 AM
Event Duration	116 mnt
Dept/Inst	AUGGN ASAP
HOI/Moderator	Prof. A.K. Yadav, PhD (IIT Delhi), Director, Amity School of Applied Sciences, Amity University Gurgaon
Email	akyadav2@ggn.amity.edu
contact Number	0

Event Name	# Registered	# Attended	Event Date & Time
<u>Two-days workshop on "Instrumentation Techniques"</u>	<u>135</u>	<u>89</u>	18 Jan 10:00AM - 12:00PM

SrNo	Name	Email Address	Join Time	Leave Time	Total Duration (Minutes)	Guest
-------------	-------------	----------------------	------------------	-------------------	---------------------------------	--------------

1	Amity University	zoom3@amity.edu	18-01-2022 09:32	18-01-2022 10:30	58	No
2	Zohri Mahrus	zohrimahrus020599@gmail.com	18-01-2022 09:59	18-01-2022 11:05	66	Yes
3	Vinita Yadav	yvinita213@gmail.com	18-01-2022 10:00	18-01-2022 11:28	88	Yes
4	Meenakshi Yadav	yadavmeenakshi360@gmail.com	18-01-2022 10:09	18-01-2022 11:28	80	Yes
5	Deepika Yadav	yadavdeepika2370@gmail.com	18-01-2022 10:02	18-01-2022 11:28	87	Yes
6	Varun Pawariya	varunpawariya@gmail.com	18-01-2022 10:49	18-01-2022 11:07	18	Yes
7	VAIBHAV VASHISHT	vaibhavforensic@gmail.com	18-01-2022 10:06	18-01-2022 11:28	83	Yes
8	Tamanna Mehra	tamannamehra2707@gmail.com	18-01-2022 10:23	18-01-2022 11:28	66	Yes
9	Tanu Allen	tallen@amity.edu	18-01-2022 10:10	18-01-2022 11:04	55	Yes
10	Km sweta sweta	swetaraghav1999@gmail.com	18-01-2022 11:06	18-01-2022 11:13	7	Yes
11	SUJIT KUMAR PANDEY	sujitdhn11098@gmail.com	18-01-2022 10:00	18-01-2022 11:19	79	Yes
12	sujeet pandey	sujeetpan@gmail.com	18-01-2022 10:24	18-01-2022 10:30	7	Yes
13	Sujeet	sujeet.pandey@s.amity.edu	18-01-2022 10:07	18-01-2022 10:20	13	Yes
14	Sarita Thakur	sthakur4@amity.edu	18-01-2022 10:41	18-01-2022 11:04	24	Yes
15	Harsh PANDEY	stark7220@gmail.com	18-01-2022 10:04	18-01-2022 11:28	85	Yes
16	Sohini Singh	ssingh14@amity.edu	18-01-	18-01-	15	Yes

			2022 10:14	2022 10:28		
17	Prof. S R Pathak	sopathak@ggn.amity.edu	18-01- 2022 09:57	18-01- 2022 11:28	92	Yes
18	Simran Barawal	simran.barawal@s.amity.edu	18-01- 2022 10:08	18-01- 2022 11:28	80	Yes
19	Bharti Sheokand	sheokandbharti123@gmail.com	18-01- 2022 09:59	18-01- 2022 11:28	90	Yes
20	Shantanu Rao	shantanu1@s.amity.edu	18-01- 2022 10:07	18-01- 2022 11:28	82	Yes
21	Dr. Shakeeluddin Shakeeluddin	schaudhary@gn.amity.edu	18-01- 2022 11:23	18-01- 2022 11:28	6	Yes
22	Sharika Yadav	sarika9914@gmail.com	18-01- 2022 09:59	18-01- 2022 11:28	89	Yes
23	Rajlakshmi Rajkumari	sanark1239@gmail.com	18-01- 2022 09:59	18-01- 2022 11:28	90	Yes
24	samiksha samant	samantsamiksha@gmail.com	18-01- 2022 10:28	18-01- 2022 10:29	1	Yes
25	Sakshi Ranjan	sakshi.ranjan393@gmail.com	18-01- 2022 10:02	18-01- 2022 11:28	87	Yes
26	Rachana Singh	rsingh2@amity.edu	18-01- 2022 10:46	18-01- 2022 11:28	42	Yes
27	Ritika Bhandari	ritikaaa97@gmail.com	18-01- 2022 10:25	18-01- 2022 11:28	63	Yes
28	Reva Sharma	revagautam0@gmail.com	18-01- 2022 10:36	18-01- 2022 11:28	52	Yes
29	Muhamad Alvin Reagen	reagenalvin@gmail.com	18-01- 2022 10:17	18-01- 2022 10:36	19	Yes
30	Rishu Yadav	raohrsh@gmail.com	18-01- 2022 10:18	18-01- 2022 10:20	3	Yes
31	Arti Rao	raoarti3398@gmail.com	18-01- 2022	18-01- 2022	47	Yes

			10:35	11:21		
32	Rajeni Kumari	rajeni8947@gmail.com	18-01-2022 10:05	18-01-2022 10:28	24	Yes
33	Purva Batra	purva1025@gmail.com	18-01-2022 10:00	18-01-2022 11:28	89	Yes
34	Pooja Sapla	pujjasapla3398@gmail.com	18-01-2022 10:11	18-01-2022 11:28	78	Yes
35	Priya Kumari	priyasehoriya@gmail.com	18-01-2022 10:02	18-01-2022 10:18	16	Yes
36	Priyanka Machra	priyankamachra2312@gmail.com	18-01-2022 10:04	18-01-2022 10:55	51	Yes
37	Preeti Yadav	preeti yadav56585@gmail.com	18-01-2022 11:13	18-01-2022 11:29	16	Yes
38	Pooja .	pooja2136946@gmail.com	18-01-2022 09:59	18-01-2022 11:28	89	Yes
39	Pinky Yadav	pinkyyadav06@gmail.com	18-01-2022 10:41	18-01-2022 11:10	30	Yes
40	Naveen kumar	nk29081998@gmail.com	18-01-2022 10:11	18-01-2022 11:28	78	Yes
41	Nisha yadav	nishuyadav2017@gmail.com	18-01-2022 10:56	18-01-2022 11:28	33	Yes
42	Nidhi Rana	nidhi13rana@gmail.com	18-01-2022 11:03	18-01-2022 11:28	26	Yes
43	Neha	nehapayal2027@gmail.com	18-01-2022 10:02	18-01-2022 11:28	87	Yes
44	Neha Sehrawat	neha10sehrawat@gmail.com	18-01-2022 10:33	18-01-2022 10:56	24	Yes
45	Neeru Yadav	neeruyadav027@gmail.com	18-01-2022 10:01	18-01-2022 10:48	47	Yes
46	Nandlal	nchoudhary@amity.edu	18-01-2022 10:40	18-01-2022 11:28	48	Yes

47	Dr. Monika Vats	mvats1@ggn.amity.edu	18-01-2022 09:47	18-01-2022 11:28	102	Yes
48	Muskan Goel	muskan6400@gmail.com	18-01-2022 09:59	18-01-2022 11:26	87	Yes
49	Manish SHANDILYA	mshandilya@ggn.amity.edu	18-01-2022 10:18	18-01-2022 11:28	71	Yes
50	Monika Gautam	mona2120456@gmail.com	18-01-2022 10:24	18-01-2022 11:28	65	Yes
51	Manu Jadon	mjadon796@gmal.com	18-01-2022 11:08	18-01-2022 11:09	1	Yes
52	Meenu Meenu	meenu.yadav.my89@gmail.com	18-01-2022 10:59	18-01-2022 11:02	3	Yes
53	Mayank Jangra	mayankjangra1929@gmail.com	18-01-2022 10:47	18-01-2022 11:05	18	Yes
54	Zinny	mapetdoris@gmail.com	18-01-2022 10:02	18-01-2022 11:28	87	Yes
55	Mansi Swami	mansiswami15@gmail.com	18-01-2022 09:59	18-01-2022 10:17	19	Yes
56	Taruna Lodhi	lodhitanu@gmail.com	18-01-2022 09:59	18-01-2022 11:28	90	Yes
57	Dr. Laxmi Kant Bhardwaj	lkbhardwaj@amity.edu	18-01-2022 10:10	18-01-2022 11:28	78	Yes
58	Laxmi Devi	laxmi87devi@gmail.com	18-01-2022 10:16	18-01-2022 11:28	72	Yes
59	Lalit Sharma	lalitsharmag987@gmail.com	18-01-2022 10:09	18-01-2022 11:28	79	Yes
60	Shivay Kumar	kumar.shivay07@gmail.com	18-01-2022 11:00	18-01-2022 11:25	26	Yes
61	krishna gautam	krishna.gautam@s.amity.edu	18-01-2022 09:58	18-01-2022 11:28	90	Yes
62	Kiran Yadav	kiran12yadav12@gmail.com	18-01-	18-01-	86	Yes

			2022 09:59	2022 11:25		
63	Bibi Shaguftah Khatoon	khatoon.chem@gmail.com	18-01- 2022 10:26	18-01- 2022 11:28	62	Yes
64	Juli Mawaty Sinaga	juli05sinaga@gmail.com	18-01- 2022 10:37	18-01- 2022 10:41	4	Yes
65	Dr. G S Bhumbrah	gsbumbrah@ggn.amity.edu	18-01- 2022 09:59	18-01- 2022 11:28	90	Yes
66	Rounak ghosh	ghoshrounak3@gmail.com	18-01- 2022 10:42	18-01- 2022 11:08	26	Yes
67	Garima Sachdeva	garima.sachdeva1009@gmail.com	18-01- 2022 09:59	18-01- 2022 11:25	87	Yes
68	Setyo Eko Nugroho	ekonugroho.ene86@gmail.com	18-01- 2022 10:31	18-01- 2022 11:14	43	Yes
69	Dr. Dipti Vaya	dvaya@ggn.amity.edu	18-01- 2022 09:55	18-01- 2022 11:04	69	Yes
70	Arti Deshwal	deswal8151@gmail.com	18-01- 2022 10:01	18-01- 2022 11:28	88	Yes
71	Deepti Arya	deepti0903arya@gmail.com	18-01- 2022 10:05	18-01- 2022 11:28	84	Yes
72	Cahya Ardianti Pasaribu	cahyaardianti2906@gmail.com	18-01- 2022 10:20	18-01- 2022 11:28	68	Yes
73	Dr Bhuvnesh Yadav	byadav@ggn.amity.edu	18-01- 2022 09:58	18-01- 2022 10:44	47	Yes
74	Sheetal Boora	boorasheetal2503@gmail.com	18-01- 2022 10:01	18-01- 2022 11:26	86	Yes
75	Barkha Chauhan	barkhachauhan345@gmail.com	18-01- 2022 10:15	18-01- 2022 11:28	74	Yes
76	Atul Yadav	atul.yadav8029@gmail.com	18-01- 2022 09:58	18-01- 2022 11:28	90	Yes
77	Ayushi Sharma	ashi.sharma1302@gmail.com	18-01- 2022	18-01- 2022	83	Yes

			10:05	11:28		
78	Dr. Anurag Sharma	asharma6@ggn.amity.edu	18-01-2022 09:56	18-01-2022 11:28	93	Yes
79	Vivek Saini	aryavivek035@gmail.com	18-01-2022 10:07	18-01-2022 11:26	79	Yes
80	Anshu Malik	anshumalik2398@gmail.com	18-01-2022 11:06	18-01-2022 11:28	22	Yes
81	Annu Rai	annunikirai11@gmail.com	18-01-2022 10:01	18-01-2022 11:28	87	Yes
82	Anjali Dayama	anjaliadayama1998@gmail.com	18-01-2022 10:04	18-01-2022 11:22	79	Yes
83	Anand Salvi	anandsindu53@gmail.com	18-01-2022 10:01	18-01-2022 11:19	79	Yes
84	Ankita mathur	amathur@gn.amity.edu	18-01-2022 10:49	18-01-2022 11:28	39	Yes
85	Prof A.K. Yadav	akyadav2@ggn.amity.edu	18-01-2022 10:40	18-01-2022 11:28	48	Yes
86	Akansha yadav	akanshayadav2202@gmail.com	18-01-2022 10:13	18-01-2022 11:11	58	Yes
87	Amit kumar	ak8689049@gmail.com	18-01-2022 10:44	18-01-2022 10:58	15	Yes
88	Aditya Mishra	aditya.mishra1@s.amity.edu	18-01-2022 10:01	18-01-2022 11:28	88	Yes
89	Shreya Sarkar	9sarkarshreya@gmail.com	18-01-2022 10:39	18-01-2022 11:28	50	Yes

Event Coordinator Name: Monika Vats

Event Coordinator Signature: 



Dr. Supreet
Outcome Coordinator, ASAS



Prof. A. K. Yadav
Director, ASAS

Signature of HOI
Stamp of the Department