

SCIENCE ACADEMIES' REFRESHER COURSE IN EXPERIMENTAL PHYSICS
(November 08 to 23, 2021)

at

DEPARTMENT OF PHYSICS, UIET, CSJM UNIVERSITY, KANPUR

Sponsored by

INDIAN ACADEMY OF SCIENCES, BANGALURU

INDIAN NATIONAL SCIENCE ACADEMY, DELHI

NATIONAL ACADEMY OF SCIENCES, INDIA, ALLAHABAD

TIME TABLE

REGISTRATION: 08 November 2021:10:00-11:00 am

Day and date	10:00 to 11:00 Hrs	11:00 to 12:15 Hrs	12:15 to 13:15 Hrs	14:15 to 15:15 Hrs	15:30 to 16:30 Hrs	16:30 to 17:30 Hrs
Monday 8 November 2021	Registration	Inauguration	MDS-1	VA-1	SC-1	DKP-1
	10:00 to 11:00 Hrs	11:15 to 12:15 Hrs	12:15 to 13:15 Hrs	14:15 to 15:15 Hrs	15:30 to 16:30 Hrs	16:30 to 17:30 Hrs
Tuesday 9 November 2021	RKD-1	SPS-1	MDS-2	SPS-2	SC-2	DKP-2
Wednesday 10 November 2021	RKD-2	VA-2	RKD-3	RKD-4	SC-3	DKP-3
Thursday 11 November 2021	SC-4	MDS-4	SPS-3	SPS-4	VA-3	DKP-4
Friday 12 November 2021	RKD-5	LABORATORY		LABORATORY		
Saturday 13 November 2021	SPL-1	LABORATORY		LABORATORY		
Sunday 14 November 2021	HOLIDAY					
Monday 15 November 2021	Discussion	LABORATORY		LABORATORY		

Day & Date	10:00 to 11:00 Hrs	11:15 to 13:15 Hrs	14:15 to 17:30 Hrs
Tuesday 16 November 2021	SPL-2	LABORATORY	LABORATORY
Wednesday 17 November 2021	Discussion	LABORATORY	LABORATORY
Thursday 18 November 2021	Presentation by participants	LABORATORY	LABORATORY
Friday 19 November 2021	Presentation by participants	LABORATORY	LABORATORY
Saturday 20 November 2021	SPL-3	LABORATORY	LABORATORY
Sunday 21 November 2021			
Monday 22 November 2021	Presentation by participants	LABORATORY	LABORATORY
Tuesday 23 November 2021	Discussion	VALEDICTORY	

LUNCH 13:15-14:15 HRS

COFFEE/TEA BREAK

11:00 to 11:15 HRS
(Except on 08 November)
15:15 to 15:30 HRS

Lectures by Resource Persons

Resource Person	S. N.	Lecture Title	Lectures
Dr. Vishal Awasthi (VA)	1.	Signal generator and Power amplifier	VA-1
	2.	Non-linear dynamics – Feigenbaum circuit	VA-3
	3.	Non-linear dynamics – Chua circuit	VA-3
Dr. Satish Chandra (SC)	4.	Calibration of Silicon diode and Copper constantan thermocouple as a temperature sensor	SC-1
	5.	Capacitance meter–Principle of operation and verification of law of addition of capacitances.	SC-2
	6.	Dielectric constant of Cyclohexane and dipole moment of acetone	SC-3
	7.	Verification of Curie Weiss law for a ceramic capacitor	SC-4
Dr. D. K. Pandey (DKP)	8.	Young’s Modulus of a bar by Flexural Vibrations	DKP-1
	9.	Rigidity Modulus of a brass wire	DKP -2
	10.	TCR of copper and Energy bandgap of silicon	DKP -3
	11.	Thermal and electrical conductivity of copper and Thermal conductivity of a poor conductor	DKP -4
Dr. S. P. Singh (SPS)	12.	Phase sensitive detection and calibration of a lock in amplifier	SPS-1
	13.	Measurement of mutual inductance and low resistance with a lock in amplifier	SPS-2
	14.	Thermal relaxation of a serial light bulb	SPS-3
Dr. Manish D. Sharma (MDS)	15.	Constant Current Source and DC Differential Amplifier	MDS-1
	16.	AC Experiments	MDS-2
	17.	AC Bridges	MDS-3
	18.	Passive Filters	MDS-4
Dr. R. K. Dwivedi (RKD)	19.	Stefan’s constant of radiation	RKD-1
	20.	Thermal diffusivity of brass	RKD-2
	21.	B-H curve using an integrator	RKD-3
	22.	High Resistance by leakage & k/e of a transistor	RKD-4
	23.	Experiments using lasers	RKD-5

Special lectures will be delivered by experts from IIT Kanpur.

LIST OF EXPERIMENTS

1. Young's Modulus and Rigidity Modulus of brass.
2. Stefan's Constant of Radiation and High resistance by Leakage
3. Thermal Conductivity and Electrical Conductivity of Copper, Thermal Conductivity of a Poor Conductor and k/e using a Transistor
4. Thermal Diffusivity of Brass
5. Calibration of a Silicon Diode and Cu-Constantan Thermocouple against Pt Resistance Thermometer.
6. TCR of Copper and Energy band gap of Silicon using a Diode.
7. AC Experiments
8. Passive Filters
9. AC Bridges
10. Dielectric Constant of Cyclohexane and Dipole Moment of Acetone.
11. Verification of Curie-Weiss law using a Ceramic Capacitor
12. Thermal Relaxation of a Serial light bulb
13. B-H curve using an Integrator
14. Lock in amplifier: Calibration, Measurement of Mutual Inductance and Low Resistance
15. Non-linear Dynamics: Feigenbaum and Chua circuits

Resource Persons for the Course

1. Dr. Vishal Awasthi, CSJM University, Kanpur
2. Dr. Satish Chandra, PPN College, Kanpur
3. Dr. DK Pandey, PPN College, Kanpur
4. Dr. Satya Prakash Singh, Christ Church College, Kanpur
5. Dr. Manish Dev Sharma, Punjab University, Chandigarh
6. Dr. R. K. Dwivedi, CSJM University, Kanpur