आरambh
Departmental Orientation

November 19, 2020

ACHARYA NARENDRA DEV COLLEGE
University of Delhi

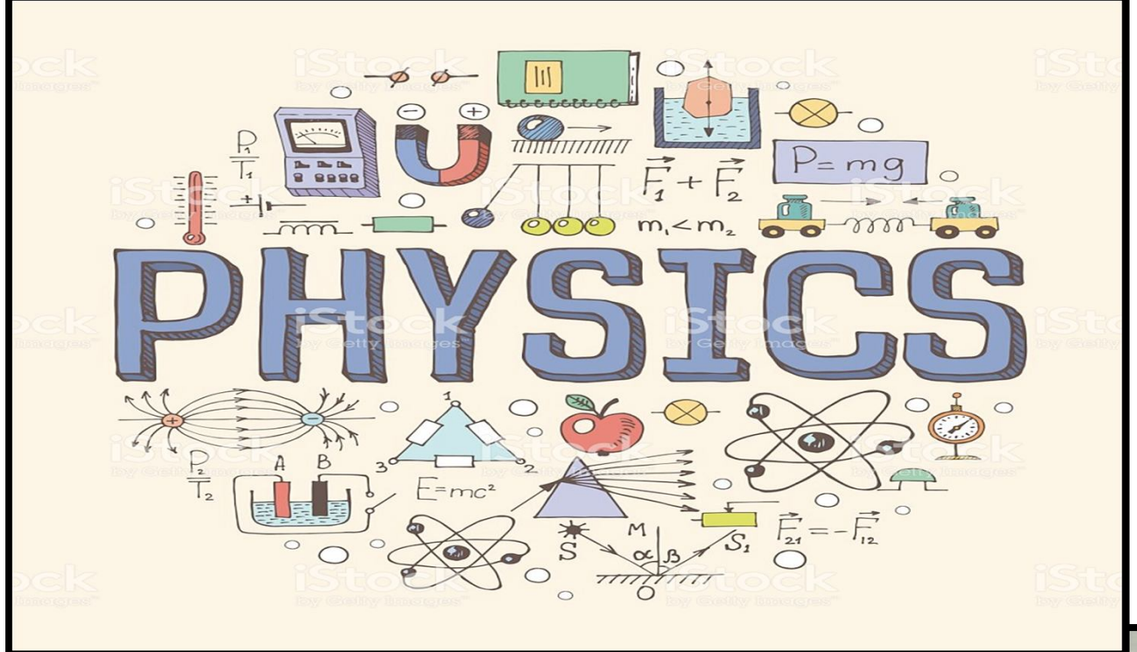
NAAC Accreditation Grade 'A' | NIRF - 2020 All India Ranking 18th

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

Department of Physics

Estd. 1992



Since inception in 1992, the Department of Physics at A.N.D. College, has continuously been striving for excellence in undergraduate teaching and research..... thus carving out it's niche as a department.

Never regard study as a duty, but as an enviable opportunity to learn.....

Overview of the Physics Department

UG COURSES

Ph.D.

5 LABS

10 SUPPORTING STAFF

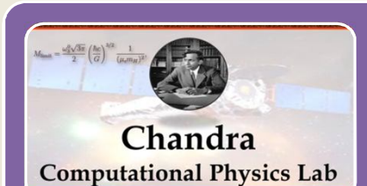
21 FACULTY MEMBERS

693 TOTAL STUDENTS

Advanced Laboratories for guiding Ph.D. students

- Experimental Material Science
- Theoretical Physics

Sensing Materials & Devices Laboratory

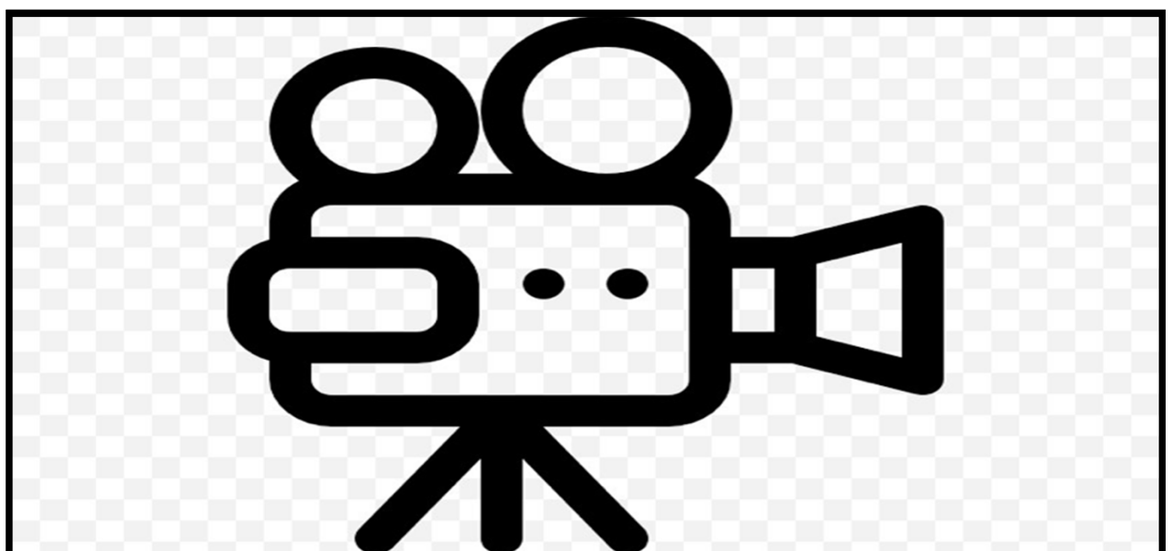


Chandra Computational Physics Laboratory

Dedicated teaching - learning process for primary stakeholders – our students

- Internet facility to students for accessing online e-resources
- Five well-equipped laboratories for smooth practical sessions
- Class-rooms with wi-fi enabled projectors besides KYAN multimedia system
- Laptops to all students for autonomous learning
- 02 undergraduate student research and Ph.D. laboratories

Dimensional analysis of the Physics department @ ANDC

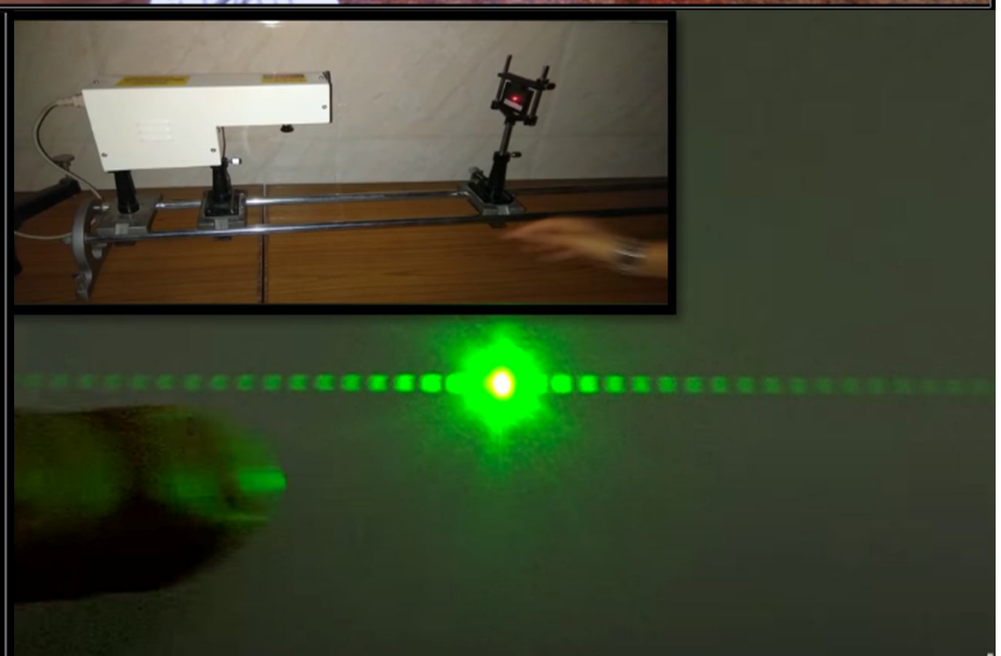


Department of Physics @ Acharya Narendra Dev College

Lab I & II


APPARATUS


uniwip
DIGITAL GAUSSMETER
-005
CONSTANT CURRENT POWER SUPPLY
050




LAB III

LAB IV

FACULTY ROOM

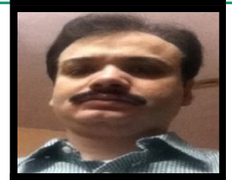
STUDENTS OUR VALUABLE ASS

Faculty & Staff

Teaching Faculty

S. No.		Name	Designation	Specialization	Experience (years)
1		Dr. Mamta Bhatia	Associate Professor	Reactor Physics	~33
2		Dr. Sanjeeta Rani		Advanced Solid State Physics	~28
3		Dr. Manisha Verma		Advanced Solid State and Super Conductivity	~28
4		Dr. Shalu Dhanda (HOD)		Electronics, Classical Mechanics	~25
5		Dr. Meenu Mohil		High Energy Theoretical physics	~22

Teaching Faculty

S. No.		Name	Designation	Specialization	Experience (years)
6		**Dr. Arijit Chowdhuri**	Assistant Professor	**Experimental Material Science**	~17.5
7		**Dr. Priti Goyal**	Associate Professor	Electronics	~20
8		**Dr. Ranjeet Singh**	Assistant Professor	Optics	~15
9		**Dr. Subhash Kumar**	Assistant Professor	**Electronics & Astrophysical Plasmas**	~20
10		**Dr. Rachna Joshi**	Associate Professor	Electronics	~20.5
11		**Mr. Pawan Kumar**	Assistant Professor	Electronics	~14

Teaching Faculty

S. No.		Name	Designation	Specialization	Experience (years)
12		**Dr. V. Bhasker Raj**	Assistant Professor	Material Science	~8
13		**Dr. Rohtash Singh**		Theoretical Plasma Physics	~8
14		**Dr. Ambika**		Material Science	~4
15		**Dr. Neelakshi Borah**		High Energy Physics	~3
16		**Dr. Sanjay Kumar**		Electronics & Holography	~3
17		**Dr. Pradeep Kumar Gupta**		Laser Plasma Interaction	~2

Teaching Faculty

S. No.		Name	Designation	Specialization	Experience (years)
18		Dr. Shashi Shekhar	Assistant Professor	Particle Physics & Field theory	~22
19		Dr. Siddhartha		Material Science & Radiation	~2
20		Dr. Rakesh Kumar Sonker		Material Science	~1
21		Dr. Satya Prakash yadav		Soft Condensed Matter	~1
22		Dr. Dinesh Kumar Verma		Non Linear Dynamics	~1

Awards/Recognitions received by Faculty

Dr. Mamta Bhatia	Fulbright- Nehru Scholar 2014 & 2018 (International Education Administrator)
	Young Scientist Award in 1987
Dr. Manisha Verma	Women's achievement award, on international women's day celebration at New Delhi, 2008
Dr. Arijit Chowdhuri	Winner of Best Innovative Idea award for DU Innovation project at Antardhvani 2015
	Recognized for Teaching Excellence and Innovation by Hon'ble Vice Chancellor, at the 93rd Foundation Day of University of Delhi during the academic session 2014 – 15
	Project Investigator in Indo-Slovenia bilateral project on (DST, Govt. of India)
	Visiting Fellow at Research School of Physics & Engineering , Australian National University, Canberra, AUSTRALIA from June – December 2009
	Best poster award at 27th PSSI national symposium on Plasma Science and Technology (2012) held in Puducherry, Tamil Nadu
	Best poster award at 3rd International Conference on Sensing Technology (ICST 2008) held at Tainan, TAIWAN

Laboratory Staff

S. No.	Name of the staff	Designation
1.	Mr. Ajay Wadhwa	Technical Assistant
2.	Mr. Yashvir Singh	Lab Assistant
3.	Mr. Manoj	
4.	Mr. Rakesh Dubey	
5	Mr. Vikas Singh Rawat	
6.	Mr. Amit Kumar	
7.	Mr. Prem Singh	
8.	Mr. Vineet Kumar	Lab Attendant
9.	Mr. Vikas Rathi	
10.	Mr. Rohtash Singh Nagar	
11.	Mr. Bharat Bhusan	

Unique methodology in the department

Hands-on experience to students on -

- Keysight/Agilent Digital Storage Oscilloscopes with 20MHz function generator.
- Digital trainer kits.
- Latest communication techniques including PAM, PWM, PPM, ASK, PSK, FSK.
- PE(Polarization and Electric Field) and SPR.
- Micro-Controller kit.

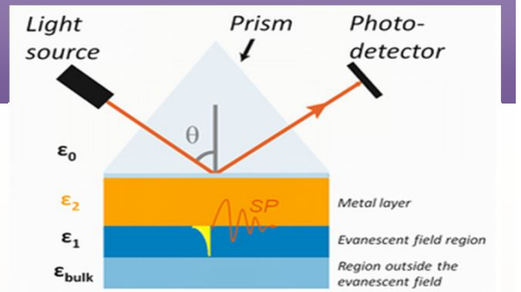
Exposure of students to frontier areas of science and cutting-edge research through interaction with scientists at National Physical Laboratory (NPL), Inter University Accelerator Centre (IUAC), Solid State Physics Laboratory (SSPL).

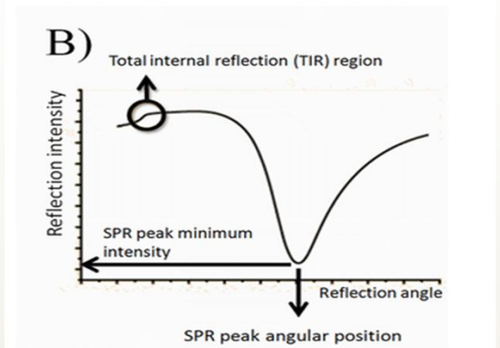
Seismogram in the college is hot-wired to IIT Roorkee for monitoring of earthquake/seismic activity. Currently Indian Meteorological Department is involved in its upkeep.

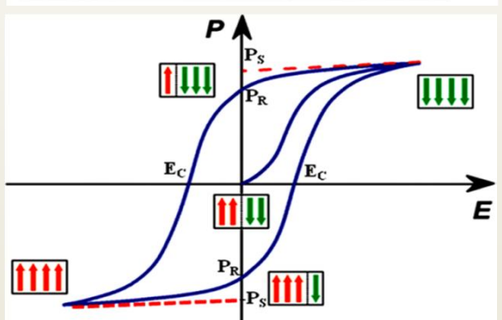
State-of-the-art Facilities & UG Research @ Physics Department

New practicals introduced

1. Measurement of complex dielectric constant of metal using Surface Plasmon resonance (SPR) technique
2. Determination of refractive index of a dielectric layer using SPR technique.
3. Measurement of P - E hysteresis and plotting its characteristics
4. Systematic determination of wavelength of LASER by studying the diffraction pattern produced by a plane diffraction grating having different grating constants.
5. Measurement of numerical aperture (NA) of an optical fiber
6. To determine the wavelength of LASER source using diffraction of single slit.
7. To determine the wavelength of LASER source using diffraction of double slits.

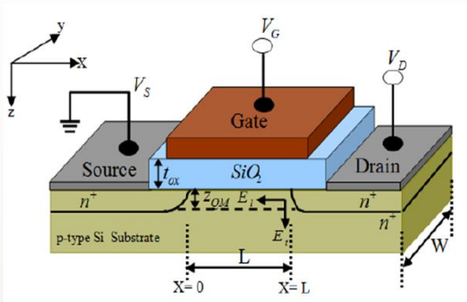


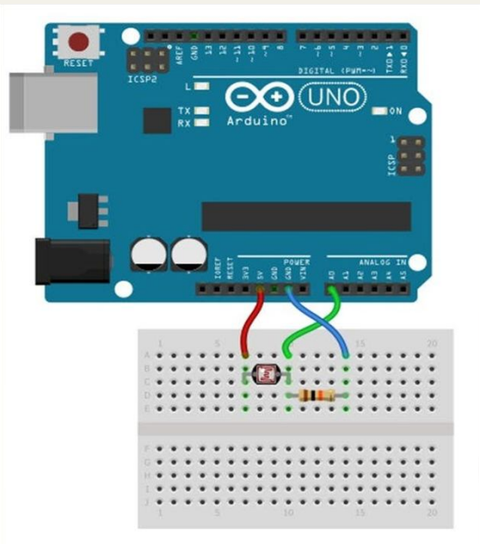




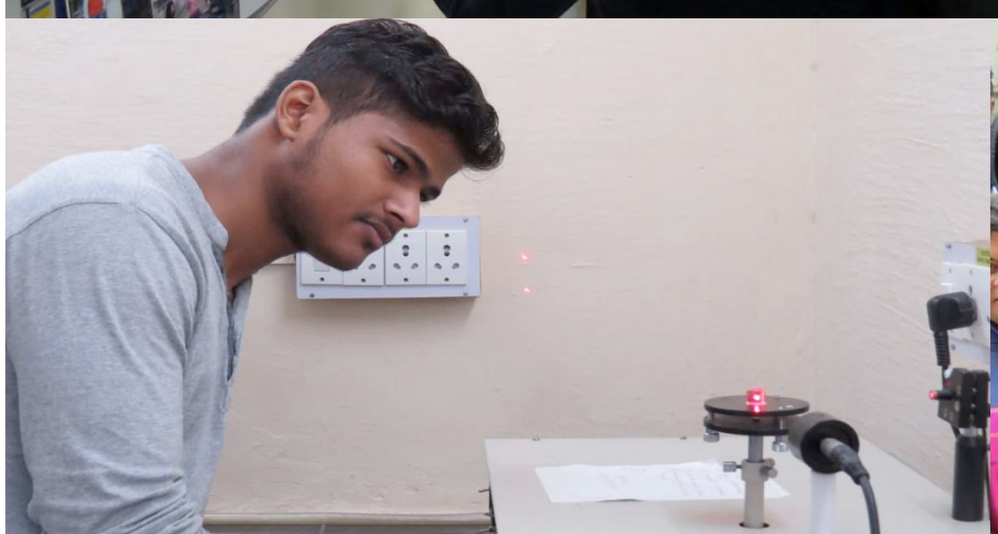
New practicals introduced.....continued

8. To determine angular spread of He-Ne LASER using plane diffraction grating
9. To find the width of the wire or width of the slit using diffraction pattern
10. To find the polarization angle of LASER light using polarizer and analyzer
11. Studying the characteristics of Light Dependent Resistor (LDR)
12. Studying the characteristics of MOSFET
13. Studying the characteristics of DIAC
14. Studying the characteristics of TRIAC
15. Recording & reconstructing LASER viewable holograms
16. Recording & Reconstructing single-step rainbow holograms
17. Arduino microcontrollers





Interactive Sessions & Students at Lab

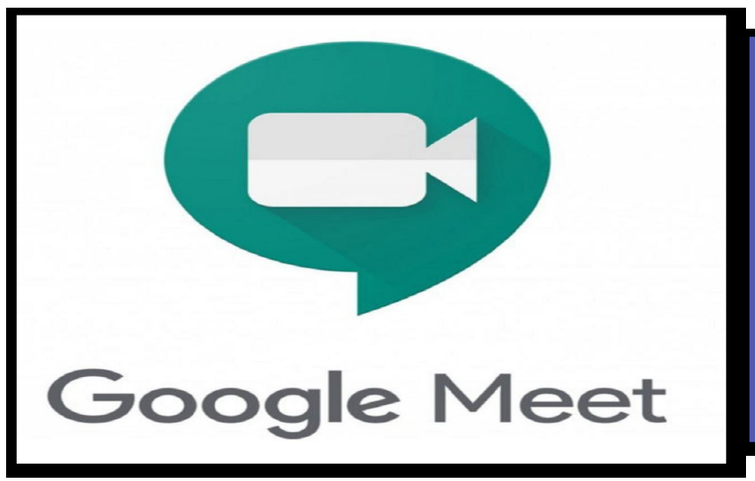


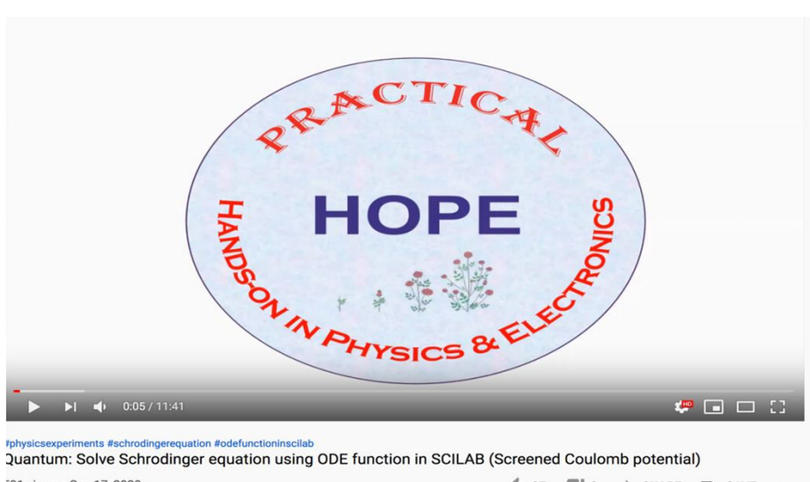
e-content and e-tools

Online Study Material during COVID Pandemic

Our faculties regularly upload the related study materials/contents on The college portal, google classroom etc.

Online Teaching Modes for Conducting Classes





https://www.youtube.com/watch?v=9Wzdwxwrcnw

https://www.youtube.com/watch?v=wnl6eAJSiOY

https://www.youtube.com/watch?v=bWUsEwCBuhE

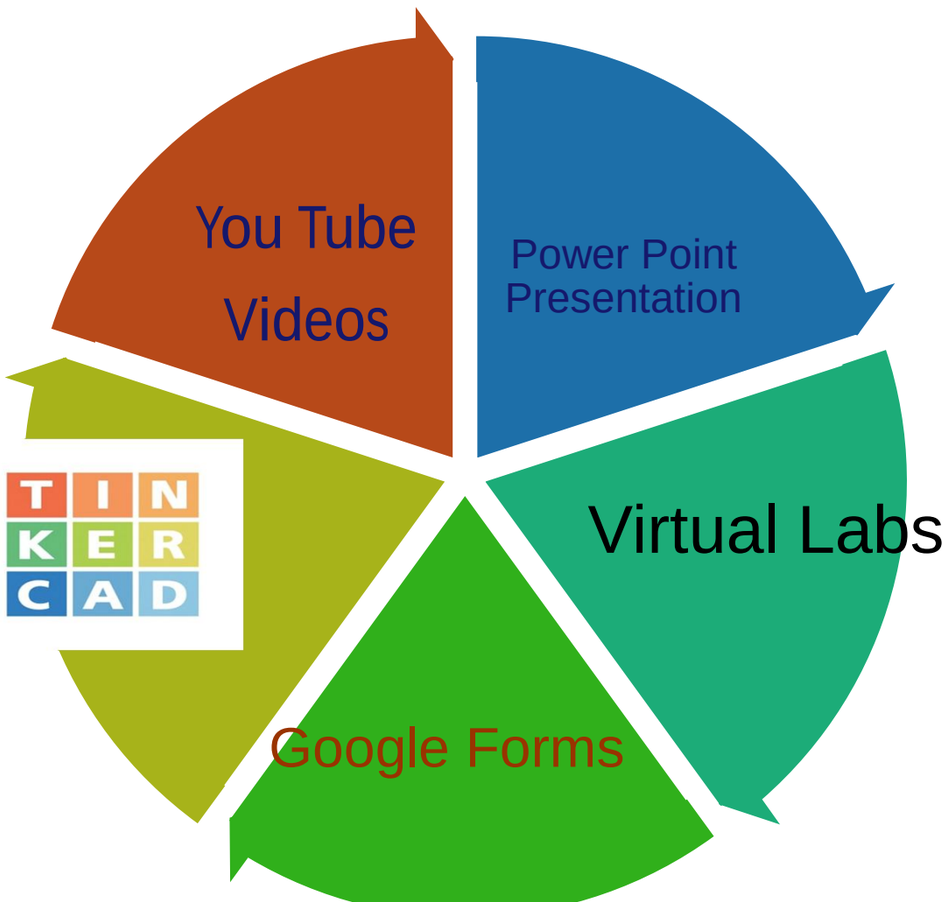
Links of few YouTube channels run by our faculty to make online teaching more interactive

Online Teaching Modes for Conducting Classes

Google Classroom

All the students are required to enroll for the respective google classrooms created. It is the platform for the assignments, sharing contents/ study materials as well as for assessment of students in the current pandemic situation. Respective teachers will send you the links for the same as your classes kick off.

Different Tools to make the Online Teaching

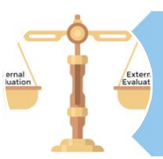


Process of Internal Assessment of students

Internal assessment

Internal assessment is an integral part of the teaching-learning process.

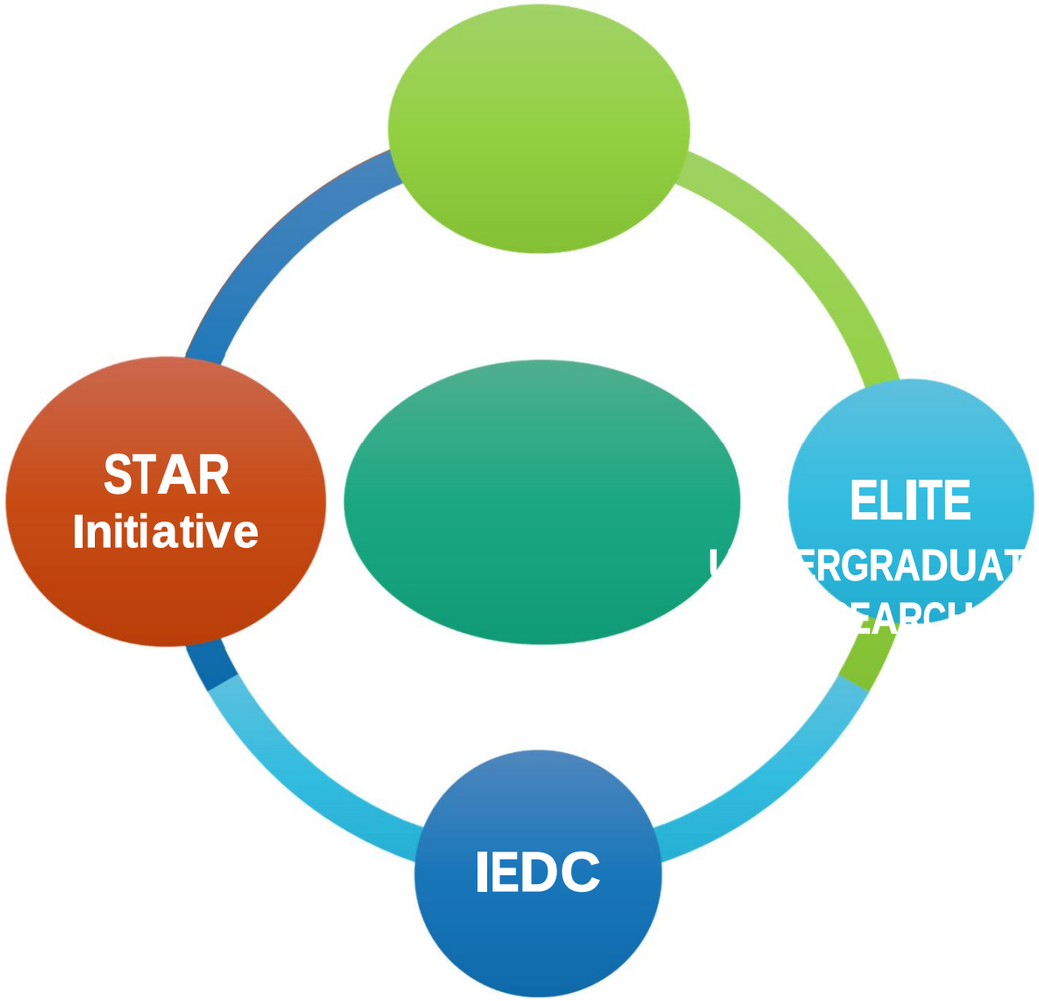
Lab works for every paper & each experiment will be reviewed on regular basis.



Internal assessment is bifurcated further and each segment is given equal weightage.

Exam based and assignment based evaluation will take place throughout the semester.

Attendance is also an integral part of the Internal Assessment.


STAR
Initiative
ELITE
IEDC

UG Student projects under college flagship schemes – ELITE & IEDC

ELITE:'Education in a Lively, Innovative Training Environment' Summer Fellowship Programme

Students get an opportunity to take up projects during summer holidays with a stipend of Rs. 1000/- per month

Freshmen are always nurtured here to change the things, if they don't like the way they are.

Inter-disciplinary / Inter-departmental projects

S. No.	Project	Mentors and students involved from the following departments
1.	Using Surface Plasmon Resonance (SPR) technique (optical) for trace level gas sensing applications	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Sanjay Kumar (Physics) Dr. Charu K. Gupta (Botany), Dr. Yash Mangla (Botany)
2.	Using Quartz Crystal Microbalance (QCM) technique for trace level sensing applications	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Yash Mangla (Botany)
3.	Using Arduino microcontroller for Ambient Air Pollution measurement applications	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Amit Garg (Electronics)
4.	Designing a working PROSTHETIC LEG using advanced Arduino® applications	Dr. Arijit Chowdhuri (Physics), Dr. Amit Garg (Electronics)
5.	Using optical technique of surface Plasmon resonance (SPR) for detection of pollutants	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Charu K. Gupta (Botany), Dr. Yash Mangla (Botany)
6.	Environmental Monitoring and risk assessment	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Charu K. Gupta (Botany), Dr. Anupama Shukla (Botany) Dr. Yash Mangla (Botany)
7.	Quartz Crystal Microbalance and Environmental Science	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Charu K. Gupta (Botany)
8.	Effect of Heavy Metals and Ethidium Bromide on DNA.	Dr. Ravi Toteja (Zoology), Dr. Seema Makhija (Zoology), Dr. Arijit Chowdhuri (Physics)
9.	Arduino micro-controller for Environmental Applications	Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Amit Garg (Electronics), Dr. Charu Khosla Gupta (Botany)
10.	Market Research on Commercial Gas Sensors and Electronic Nose in India and Abroad	Dr. Arijit Chowdhuri (Physics), Dr. Sandeep Kumar Goel (Commerce)

UG Student projects under DBT STAR College Scheme, 2019-20

Interdisciplinary / Interdepartmental Projects

S. No.	Topic	Students
1.	**An Estimation of Ambient Air Pollution by Measuring Content of Chlorophyll - 2019** Mentor: Dr. Arijit Chowdhuri (Physics) & Dr. Charu Khosla Gupta (Botany)	Nitish Kalson and Heena Nizam B.Sc. Life Sciences-II Year
2.	**Using Surface Plasmon Resonance (SPR) Technique (Optical) for Estimation of Chlorophyll -2019** Mentor: Dr. Arijit Chowdhuri (Physics), Dr. Charu Khosla Gupta and Dr. Yash Mangla (Botany)	Akash Gupta and Anshuman Tripathi B.Sc. (H) Physics-III year
3.	**Water Pollution – Estimation of Contamination in Local Environment -2019** Mentor: Dr. Arijit Chowdhuri (Physics) and Dr. Charu Khosla Gupta (Botany)	Payal Singh and Ankita Negi B.Sc. Life Sciences-II year
4.	**Using Surface Plasmon Resonance (SPR) Technique (Optical) for Trace Level Sensing Applications -2019** Mentor: Dr. Arijit Chowdhuri (Physics) and Dr. V. Bhasker Raj (Physics)	Anshuman Tripathi and Yogesh Shukla B.Sc. (H) Physics-III year
5.	**Using Quartz Crystal Microbalance (QCM) Technique for Trace Level Sensing Applications-2019** Mentor: Dr. Arijit Chowdhuri (Physics) and Dr. V. Bhasker Raj (Physics)	Siddharth Das B.Sc. Physical Sciences with Electronics-III year
6.	**Using Arduino Microcontroller for Ambient Air Pollution Measurement Applications -2019** Mentors: Dr. Arijit Chowdhuri (Physics) and Dr. V. Bhasker Raj (Physics)	Adarsh Prasad B.Sc. Physical Sciences with Electronics-III year

UG Student projects under college flagship schemes – ELITE

S. No.	Topic	Students
1.	**Review of Potential Biosensing Application using Quartz Crystal Microbalance Monitor. -2019** Mentor: Dr. Arijit Chowdhuri (Physics) & Dr. V. Bhasker Raj (Physics)	Anudeep A.S., Viren Tyagi and Amrit Dutta B.Sc. (H) Physics - II year
2.	**Arduino® for Ambient Air Pollution Measurement Applications -2019** Mentor: Dr. Arijit Chowdhuri (Physics)	Tripti Varshney B.Sc. (H) Physics - II year
3.	**Surface Plasmon Resonance – A Tool to Detect Change in Refractive Index.-2019** Mentor: Dr. Arijit Chowdhuri (Physics), Dr. V. Bhasker Raj (Physics), Dr. Sanjay Kumar (Physics) Dr. Charu K. Gupta (Botany), Dr. Yash Mangla (Botany)	Tamanna, Sudeepta Singh, Sansi Bansal and Sarang Saini B.Sc. (H) Biomedical Science-II year
4.	**Ambient Air Pollution by Estimation of Chlorophyll -2019** Mentor: Dr. Arijit Chowdhuri (Physics) and Dr Charu Khosla Gupta (Botany)	Nitish Kalson and Heena Nizam B.Sc. Life Sciences-II year
5.	**Water Pollution – Estimation of Contamination in Local Environment.-2019** Mentor: Dr. Arijit Chowdhuri (Physics) and Dr. Charu Khosla Gupta (Botany)	Payal Singh and Ankita Negi B.Sc. Life Sciences-II year
6.	**Effect of Heavy Metals and Ethidium Bromide on DNA. -2018** Mentor: Dr. Ravi Toteja (Zoology), Dr. Seema Makhija (Zoology) and Dr. Arijit Chowdhuri (Physics)	Senjuti B.Sc. (H) Zoology, II Year Chaitanya Raj B.Sc. (H) Physics III Year
7.	**Designing a working PROSTHETIC LEG using advanced Arduino® applications** – Mentor: Dr. Arijit Chowdhuri (Physics)	Adarsh Prasad B.Sc. Physical Science (Electronics), III Year
8.	**Environmental Monitoring-2018** Mentors: Dr. Arijit Chowdhuri (Physics) and Dr. Charu K. Gupta (Botany)	Manohar Singh Bisht and Medha Jha B.Sc. (H) Botany, III Year
9.	**Using optical technique of surface plasmon resonance (SPR) to detect adulteration in commodities including, honey, oil etc. -2018** Mentor: Dr. Arijit Chowdhuri (Physics), Dr. Charu K. Gupta (Botany) and Dr. V. Bhasker Raj (Physics)	Chaitanya Raj, Yogesh Shukla and Anshuman Tripathi B.Sc. (H) Physics, III Year

UG Student projects under college flagship schemes – IEDC

IEDC Scheme (sponsored by Department of Science & Technology, Govt. of India)		
S. No.	**Topic**	**Students**
1.	**Development of sensor module for gas sensing (2012)** Mentor – Dr. Arijit Chowdhuri(Physics)	Mr. Ashish Pokhriyal, Mr. Prayas Tiwari, Mr. Pankaj Rawat
2.	**Development of compact water purifier system (2013)** Mentor – Dr. Arijit Chowdhuri (Physics) and Dr. Charu K. Gupta (Botany)	Ms. Sagarika Sharma, Ms. Haripriya Sharma, Mr. Abhishek Tiwari

DBT STAR College scheme at Physics Department

The critical thinking process is enhanced and strengthened at PHYSICS Department, which is a DBT STAR Department, under the DBT STAR College Scheme, started in 2017.

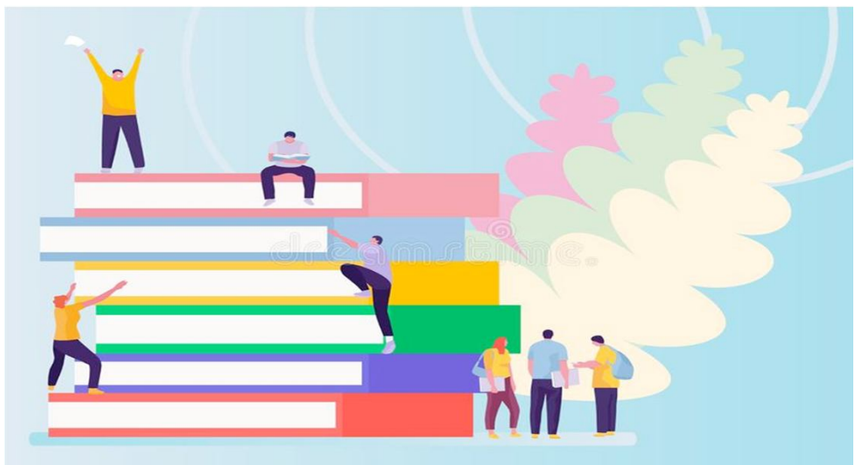
Dr. Arijit Chowdhuri

(Coordinator)

Total 06 projects have been completed successfully in the year 2019 - 20 & 07 projects in the year 2018-19 under this scheme.

One of the objective of this DBT STAR College Scheme is to promote the interdisciplinary and interdepartmental research among the undergraduate students and faculty as well.

The secret of getting ahead is getting started…



Activities by Faculty

Membership of International/National Societies/Committees/Boards

S. No.	Societies/committees/boards	Faculties
1	CII National Committee on Higher Education, 2015-16	Dr. Mamta Bhatia
2	Hony. Advisor & Consultant, Campus of Open Learning, University of Delhi (2014 - till date)	
3	Advisory Board, M. S. Panwar Community and Technical College, Solan (H.P) 2015 - 16	
4	Indian Association of Physics Teachers (IAPT)	Dr. Sanjeeta Rani Dr. Arijit Chowdhuri Dr. Rachna Kundliya Joshi
5	Plasma Science Society of India (PSSI)	Dr. Arijit Chowdhuri Dr. Subhash Kumar Mr. Pawan Kumar

Projects by Faculty (DU Innovation scheme)

S. No.	Title	Project No.	Year	Grant received (INR)
1.	Development of portable E-Nose prototype with autonomous & stand-alone operation for quantified Ambient Air Pollution (AAP) measurement using wireless data transfer protocol on Android enabled mobile phones PI – Dr. Arijit Chowdhuri	ANDC - 304	October 2015 – 2018	6.00 lakhs
2.	Leveraging Big Data for Astronomy and Health Care PI – Dr. Subhash Kumar	ANDC - 309	October 2015 – 2018	5.00 lakhs
3.	Artificial Olfaction using E-NOSE – mimicking human nose for gas sensing applications PI – Dr. Arijit Chowdhuri	ANDC - 204	2013 – 2015	5.00 lakhs
4.	Astronomy using archival data PI – Dr. Subhash Kumar	ANDC-203	2013-2015	4.50 lakhs
5.	CO_2 Gas Sensing – an ICT based investigation for pollution control PI – Dr. Arijit Chowdhuri & Dr. Subhash Kumar	ANDC - 102	2012 – 2013	10.00 lakhs
6.	Glucose Detection – a Biosensing approach PI – Dr. Arijit Chowdhuri	ANDC - 101	2012 – 2013	10.00 lakhs

Faculty Projects hosted externally

S. No.	Title	Funding Agency	Year
7.	Analysis of light curves of variable stars Co- PI Dr. Subhash Kumar	DST	2013 - 2016
8.	Exposure-response assessment of Ambient Air Pollution (AAP) and Hg contamination in affected cities of India and Slovenia: A comparative study PI – Dr. Arijit Chowdhuri		May 2015 – Nov. 2018
9.	Development of magnetron source for Plasma assisted growth of Metal-oxide films for sensor applications Co- PI Dr. Arijit Chowdhuri		2009 – 2012
10.	Development of low cost real time monitoring system for detection of harmful gases Co- PI Dr. Arijit Chowdhuri	DIT (Min. Inf. Tech. & Commn.), Govt. of India	2010 – 2012
11.	Growth and characterization of composite matrices of SnO_2 thin film and nanocatalysts for automotive gas sensors Co-PI Dr. Arijit Chowdhuri	National Programme on Micro and Smart Systems (NPMASS), Govt. of India	2010 – 2012

Faculty projects hosted externally with international support

S. No.	Title	Funding Agency	Year
12.	Digital learning (UKIERI Projects of Campus of Open Learning, Univ. of Delhi) Project Coordinator - Dr. Mamta Bhatia	UK-India Education and Research Initiative of British Council	2012 - 2015
13.	Computer gaming (UKIERI Projects of Campus of Open Learning, Univ. of Delhi) Project Coordinator - Dr. Mamta Bhatia	UK-India Education and Research Initiative of British Council	2012 - 2015

Invited Lecture/Panelist/Expert

1	National Jury Member , India Innovation i3 Awards by CII and AICTE, 2015	Dr. Mamta Bhatia
2	Jury member for the DST coordinated INSPIRE Programe for school students (2013 - 2015)	Dr. Arijit Chowdhuri, Dr. Subhash Kumar, Dr. Manisha Verma
3	Invited as panel expert, National Workshop on " Community colleges : an alternative mode of education" M.S. Panwar Community College, Solan, 2015	Dr. Mamta Bhatia
4	Invited Lecture , National Workshop on " Community colleges in India: A desirable model", Tezpur University, 2015	Dr. Mamta Bhatia
5	Invited Lecture at 16th National Seminar on Physics and Technology of Sensors (NSPTS-16) held from 11 – 13 February 2011 at Department of Physics, University of Lucknow, Uttar Pradesh – 226 007	Dr. Arijit Chowdhuri
6	Invited Lecture at 2nd National Conference on Nanomaterials and Nanotechnology held from 21 – 23 December 2009 at Department of Physics, University of Lucknow, Uttar Pradesh – 226 007	Dr. Arijit Chowdhuri

Publications by Faculty

Name	Papers in International Journals	Papers in National Journals	Papers / Abstracts in International Conferences	Papers / Abstracts in National Conferences	Chapters / Books/E-resources
Dr. Mamta Bhatia	2	-	2	1	01
Dr. Sanjeeta Rani	-	3	-	-	-
Dr. Manisha Verma	2	-	-	1	-
Dr. Shalu Dhanda	1	-	-	-	-
Dr. Meenu Mohil	2	3	-	-	-
Dr. Arijit Chowdhuri	23	04	45	25	3
Dr. Priti Goyal	3	-	1	-	3 reviewed
Dr. Ranjeet Singh	6	-	-	-	-
Dr. Subhash Kumar	5	-	-	-	-
Dr. Rachna Joshi	6	2	2	-	2
Mr. Pawan Kumar	-	-	-	-	1

Publications by Faculty

Name	Papers in International Journals	Papers in National Journals	Papers / Abstracts in International Conferences	Papers / Abstracts in National Conferences	Chapters / Books/E-resources
Dr. V. Bhasker Raj	12	06	12	4	-
Dr. Rohtash Singh	10	-	4	4	-
Dr. Ambika	13	2	-	-	-
Dr. Neelakshi N K Borah	4	1	2	4	1
Dr. Sanjay Kumar	15	5	2	12	-
Dr. Pradeep K Gupta	8	-	-	-	-
Dr. Shashi Sekhar	-	-	-	-	-
Dr. Siddhartha	18	3	4	2	1
Dr. Rakesh Kumar Sonker	34	1	21	11	1
Dr. Satya Prakash Yadav	24	-	-	-	-
Dr. Dinesh Verma	7	2	2	-	2

Publications by Faculty

RSC Advances

PAPER

Controlling room temperature ferromagnetism and band gap in ZnO nanostructured thin films by varying angle of implantation

Rajesh V. Hariwal, Hitendra K. Malik, Ambika Negi and Asokan Kandasami

1. Introduction

Pulse-compression and self-focusing of Gaussian laser pulses in plasma having relativistic–ponderomotive nonlinearity

S. KUMAR, P.K. GUPTA, R.K. SINGH, S. SHARMA, R. UMA, AND R.P. SHARMA

Abstract

1. INTRODUCTION

Dynamics of focussed femtosecond laser pulse during photodisruption of crystalline lens

Pradeep Kumar Gupta, Ram Kishor Singh and R. P. Sharma

(Received 6 February 2018; accepted 10 April 2018; published online 26 April 2018)

I. INTRODUCTION

Liquid Crystals Reviews

Ferroelectric liquid crystal nanocomposites: recent development and future perspective

Satya Prakash Yadav, Kanchan Yadav, Jayeeta Lahiri & Avanish Singh Parmar

To cite this article: Satya Prakash Yadav, Kanchan Yadav, Jayeeta Lahiri & Avanish Singh Parmar (2018) Ferroelectric liquid crystal nanocomposites: recent development and future perspective, Liquid Crystals Reviews, 6:2, 143-169, DOI: 10.1080/21680396.2019.1589400

To link to this article: https://doi.org/10.1080/21680396.2019.1589400

Published online: 22 Mar 2019.

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Sensitivity Enhancement Studies of SAW Vapor Sensor by Oscillator Tuning Using Varactor Diode

Harpreet Singh, Yashoda Parmar, V. Bhasker Raj, Haresh M. Pandya, Jitender Kumar, Meena Mishra, Archibald Theodore Nimal, and Manoj Umesh Sharma

I. Introduction

Sensors and Actuators B: Chemical

Distinct detection of liquor ammonia by ZnO/SAW sensor: Study of complete sensing mechanism

V. Bhasker Raj, Harpreet Singh, A.T. Nimal, M.U. Sharma, Monika Tomar, Vinay Gupta

1. Introduction

Optics Communications

Enhancement in self-compression due to co-propagating laser pulse in plasma

Sintu Kumar, Pradeep Kumar Gupta, R. Uma, R.P. Sharma

ARTICLE INFO

ABSTRACT

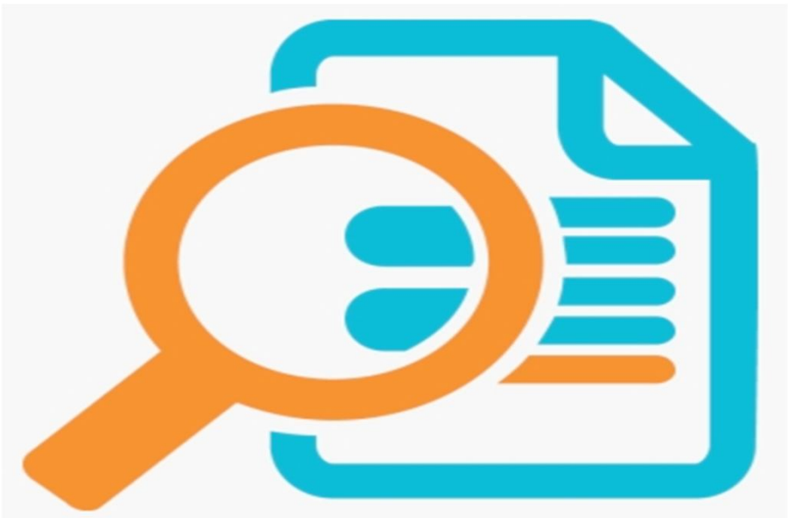
1. Introduction

Materials Research Express

PAPER

Structural and optical properties of electrochemically deposited ZnO nanorods by using graphene oxide and ITO as substrate material: a comparative study

Abstract



Generic Elective Paper Options

Generic Elective - I (GE-I) offered by various Departments

S. No.	Department	Paper Offered as GE–1
1.	BMS	Biological Chemistry or Basics of Immunology
2.	Botany	Biodiversity (Microbes, Fungi, Algae, and Archegoniatae) or Plant Anatomy and Embryology
3.	Chemistry	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons
4.	Commerce	Basics of Accounting or Business Organization and Management
5.	Economics	Introductory Micro Economics
6.	Computer Science	Programming using Python
7.	Electronics	Data Science or Applied Mathematics-I
8.	English	Language, Literature & Culture
9.	Mathematics	Calculus or Analytic Geometry and Theory of Equations
10.	Physical Education	Yoga/Stress Management
11.	Physics	Electricity and Magnetism or Mathematical Physics or Digital, Analog and Instrumentation
12.	Zoology	Animal Diversity or Insect, Vector and Diseases


Mentoring
Matters!

Mentoring Groups for B.Sc. (H) Physics 1st year

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ACHARYA NARENDRA DEV COLLEGE
DEPARTMENT OF PHYSICS

PHYSICS-I

TIME TABLE 2020-21 **SEMESTER - I**

PERIOD / DAY	1	2	3	4	5	6
	8.45 am to 9.45 am	10 am to 11 am	11.15 am to 12.15 pm	12.30 pm to 1.30 pm	1.45 pm to 2.45 pm	3.00 pm to 4.00 pm
MONDAY		MP-I (NB)	MP-I (NB)		GE-I LAB	
TUESDAY	GE-I THEORY	GE-I THEORY		MECHANICS LAB (MM, RKS, MV, RJ)		
WEDNESDAY	MECHANICS (PKG)	MECHANICS (PKG)				
THURSDAY	MP-I LAB (SR, SP, RS, RoS(1))				GE-I THEORY	GE-I THEORY
FRIDAY	MP-I (NB)	MP-I (NB)	ENGLISH	ENGLISH		
SATURDAY	MECHANICS (PKG)	MECHANICS (PKG)	ENGLISH	ENGLISH		

SR:Dr. Sanjeeta Rani
MV: Dr. Manisha Verma
RJ: Dr. Rachna Joshi
MM: Dr. MeenuMohil
RS:Dr. Ranjeet Singh
MP-I: MATHEMATICAL PHYSICS-I

NB: Dr. Neelakshi Bora
RoS: Dr. Rohtash Singh
RKS: Dr. Rakesh Sonker
DKV: Dr Dinesh kr Verma
PKG: Dr. Pradeep K Gupta
SP: Dr. Satya Prakash

Students achievements, activities, participations…

PHYSENTROPY: The Society of Physics Department

The journey of the society of Dept. of Physics, Acharya Narendra Dev College took off in 2007.

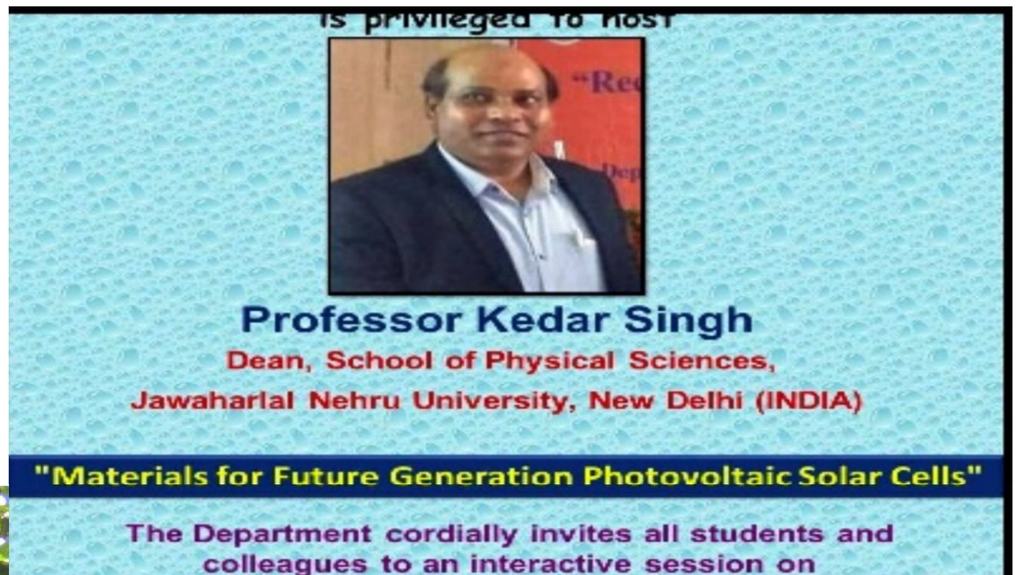
It started with a vision to provide the students a platform to develop and showcase their hidden academic and technical talents and achievements.

From the inception, **PHYSENTROPY** has continuously been evolving and pushing its own limits of being just a departmental society.

PHYSENTROPY: The Society of Physics Department

Every year **PHYSENTROPY** presents its annual fest **NEBULA**, which is full of events and excitement. **NEBULA'20** was graced by the presence of,

Professor Kedar singh,
Dean, School of Physical sciences,
Jawaharlal Nehru University, New Delhi.



Eminent visitors hosted by

PHYSENTROPY – the physics society

Speaker	Affiliation	Topic	Date of visit
Prof. Kedar Singh	Dean, School of Physical Sciences, JNU	Materials for Future Generation Photovoltaic Solar Cells	05-03-2020 NEBULA'20
Prof. Vinay Gupta	Dean, Examinations & Professor Dept. of Physics and Astrophysics, University of Delhi	Novel materials and techniques of harnessing Renewable Energy	15-03-2019 NEBULA'19
Mr. Sujit Kumar	Visiting Scholar at National Device Laboratory	MoS_2: A promising 2D Material	15-03-2019 NEBULA'19
Ms. Phalguni Mathur	Research Scholar at Bharathiar University, Coimbatore	MIMO Antennas for 5G and IoT	15-03-2019 NEBULA'19

Eminent visitors hosted by

PHYSENTROPY – the physics society

Speaker	Affiliation	Topic	Date of visit
Prof. Vinay Gupta	Former Dean, Examinations & Professor Dept. of Physics and Astrophysics, University of Delhi	Functional Materials for Device Applications	10-04-2018 NEBULA'18


NEBULA

Workshops and seminars

Department of Physics / Physics Society PHYSENTROPY organized the following functions:

Invited talk "Quartz Crystal Microbalance (QCM) for environmental monitoring and gas detection" on 12 September 2019 by Ms. Priya Chopra, PG student at Bonn-Cologne Graduate School of Physics and Astronomy (BCGS), Bonn, GERMANY [Alumni]

An Inter-College hands-on workshop for students on "Surface Plasmon Resonance (SPR) and UV-Visible Spectroscopy: Basic working principle and Environmental Applications" was held from 23 – 27 August 2019

[in collaboration with Botany Deptt.]

An interdisciplinary workshop "Learning Science by Doing Science" from 18 – 22 June, 2019 for students and faculty – jointly organized with Departments of Botany, Zoology and Chemistry

NEBULA 2019 on 15 March 2019 which included two invited talks by Professor Vinay Gupta (Novel materials and techniques of harnessing Renewable Energy) and Mr. Sujit Kumar (MoS_2: a promising 2D Material) and a popular talk by Ms. Phalguni Mathur (MIMO antennas for 5G and IoT) [Both Alumni]

Workshops and seminars organized

1.

Invited Talk – "Nanotechnology – applications in Optoelectronics and Renewable Energy" by Professor Hark Hoe Tan, from Department of Electronic Materials Engineering, Research School of Physics and Engineering, Australian National University, Canberra, ACT – 2601, AUSTRALIA on 31 January 2019

Two day hands-on workshop titled "Paradigm shift in Physics Education through hands-on techniques in Optics" on 5 and 7 September 2018 for students and faculty in collaboration with Joy of Learning Foundation, Delhi

Inter-college hands – on workshop titled "Arduino - Basic Programming & Applications" on 11 – 12 April 2018 for students of various disciplines.

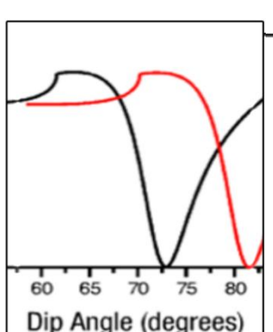
Invited Talk -"Applications of Biomedical Imaging in Drug Discovery and Treatment Monitoring" by Dr. Soumya Mitra, Senior Scientist II, Pathology & Imaging Group, Department of Immunology Pharmacology, Abbvie Bioresearch Center, Massachusetts, USA on 26 September 2017

NEBULA 2018 on 10 April 2018 wherein Professor Vinay Gupta, Dean Examinations, University of Delhi delivered a popular lecture (Functional Materials for Device Applications). His lecture was followed by inter-college online and offline competitions including science quiz etc.

Faculty / Student Skill-set Improvement Programs

Dr. Arijit Chowdhuri, Dr. V. Bhasker Raj and Dr. Rakesh Kumar Sonker have acquired 10 day long hands-on training on advanced thin film growth technique of a) Pulsed LASER Deposition with KrF LASER (Excel Instruments, India) and b) processing technique of mask aligning (MA-6, Karl Suss, Germany) in December 2019. The training was carried out in December 2019, at Microelectronic Devices Fabrication Laboratory based in University of Delhi, Delhi.

Mr. Jatinder Pal Singh and Ms. Priya Chopra of B.Sc. (H) Physics – III year were trained on thin film deposition technique of Thermal Evaporation and Electron beam evaporation at Electronic Materials & Devices Laboratory at Department of Physics & Astrophysics, University of Delhi. Their period of training was for 10 days during the period 01 - 10 June 2018 in the fabrication laboratory headed by Professor Vinay Gupta.



Mr. Anshuman Tripathi and Mr. Akash Gupta of B.Sc. (H) Physics – III year and Mr. Siddharth Das of B. Sc. Physical Science (Electronics) – III year were trained on optical characterization technique of Surface Plasmon Resonance using Au thin film coated prisms and Thermal Evaporation at Electronic Materials & Devices Laboratory at Department of Physics & Astrophysics, University of Delhi. Their period of training was for 15 days during the period 14 - 30 June 2019 in the laboratory headed by Professor Vinay Gupta.

Visits to industry and important laboratories of national eminence

National Physical Laboratory (NPL) and Inter University Accelerator Centre (IUAC)

Every year on National Science Day - 28 February students from B.Sc. (H) Physics and B.Sc. Physical Science (Electronics) are taken to visit the facilities of Inter University Accelerator Centre (IUAC formerly Nuclear Science Centre) and National Physical laboratory (NPL). This allows them to feel research in frontier areas of science closely while giving them an opportunity to interact with eminent scientists

Electronic Materials & Devices Laboratory (EMDL), Department of Physics & Astrophysics, University of Delhi, Delhi

Students of Final year B.Sc. (H) Physics are taken to EMDL, Department of Physics & Astrophysics, University of Delhi and introduced to frontier areas of research in experimental material science. The students learn rudiments of thin film deposition techniques including RF Sputtering, Thermal Evaporation, Sol-gel and Pulsed LASER deposition (PLD)

Fabrication Laboratory, University of Delhi, Delhi

Students are taken to Fab. Lab. and are given a hands-on feeling of working in an advanced semiconductor fabrication laboratory. Specifically, the students learn finer nuances of Integrated Chip manufacturing in a Class-1000 room wearing anti-static clothing. They also get exposure to wafer fabrication/characterization equipments including thin film profilometer (Veeco, USA), Wafer Dicer (Disco, Japan), E-beam evaporation (6 kW gun Telemark, USA), Probe Station (Cascade, USA), Semiconductor Characterization System (Keithley, USA), Wire Bonder (Westbond, USA), Mask Aligner (Karl Suss, Europe) and Thermal Oxidation Furnace (MRL, UK) to name a few.

Lectures Delivered by Experts/Speakers in relevant subject area

"Applications of Biomedical Imaging in Drug Discovery and Treatment Monitoring" –

Dr. Soumya Mitra

Senior Scientist II, Pathology & Imaging Group, Department of Immunology Pharmacology, Abbvie Bioresearch Center, Massachusetts, USA

"Exposure-response assessment of Ambient Air Pollution (AAP) and Hg contamination" -

Dr. David Kocman

Head of Research Group - Informatics, Department of Environmental Science, Jozef Stefan Institute, Ljubljana, SLOVENIA

"Nanotechnology – applications in Optoelectronics and Renewable Energy" –

Prof. Hark Hoe Tan

Professor at Department of Electronic Materials Engineering, Research School of Physics and Engineering, Australian National University, AUSTRALIA

Novel materials and techniques of harnessing Renewable Energy - Professor Vinay Gupta

Dean, Examinations and Professor, Department of Physics & Astrophysics, University of Delhi, Delhi, INDIA

"MoS_2: a promising 2D Material" –

Mr. Sujit Kumar (Alumni)

Visiting Scholar, National Device Laboratory, TAIWAN and Taiwan Semiconductor Manufacturing Company (TSMC)

Lectures Delivered by Experts/Speakers in relevant subject area

"Quartz Crystal Microbalance (QCM) for environmental monitoring and gas detection" –

Ms. Priya Chopra (Alumni)

Postgraduate student at Bonn-Cologne Graduate School of Physics and Astronomy (BCGS), Bonn, **GERMANY**

"Surface Plasmon Resonance: Basic Principles and Applications" –

Dr. Ayushi Paliwal

Department of Physics, Deshbandhu College (University of Delhi) Kalkaji, New Delhi – 110 019

"Basics of biosensing using Surface Plasmon Resonance" –

Dr. Prashant Pradhan

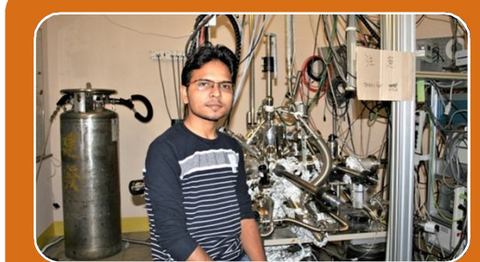
Kusuma School of Biological Sciences, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi – 110 016

Outreach activities (Popular Lectures)

"Materials for Future Generation Photovoltaic Solar Cells"	• **Professor Kedar Singh** • Dean, School of Physical Sciences, Jawaharlal Nehru University, New Delhi (INDIA)
"MIMO antennas for 5G and IoT"	• **Ms. Phalguni Mathur (Alumni)** • Research Scholar and Specialist in Microwave Electronics and RADAR Systems, Department of Physics, Bharatiar University, Coimbatore, Tamil Nadu, India
"Functional Materials for Device Applications"	• **Professor Vinay Gupta** • Dean, Examinations and Professor, Department of Physics & Astrophysics, University of Delhi, India
"Paradigm shift in Physics Education through hands-on techniques in Optics	• **Ms. Anshumala Gupta** • Founder Director, Joy of Learning Foundation, Delhi
"Understanding Microcontrollers"	• **Dr. Amit Garg** • Associate Professor, Department of Electronics, ANDC, University of Delhi, India
"Do I see myself doing Science?"	• **Mr. Bishal K. Das (Alumni)** • Department of Ecology, Faculty of Environmental Science, Czech University of Life Science, Prague, CZECH REPUBLIC

Recent publications by students

Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India – C. K. Gupta, Jatinder Pal Singh, Priya Chopra, V. B. j and Arijit Chowdhuri – DU Journal of Undergraduate Research and Innovation Volume 3, Issue 2, (2017) pp 71-81 [ISSN: 2395-2334]



Room temperature detection of H_2 and H_2S gases by Graphene oxide (GO) films using Surface Plasmon Resonance (SPR) technique" – Anshuman Tripathi, Yogesh Shukla, Akash Gupta, S. Kumar, A. Garg and Arijit Chowdhuri – International Conference on Advanced Materials Energy & Environmental Sustainability (ICAMEES-2018) 14 – 15 December 2018, University of Petroleum & Energy Studies, Dehradun, Uttarakhand, INDIA pp 37

"Preliminary studies on estimating the composition and concentration levels of dangerous metals in fine dust at Dariba Kalan, Delhi: human health concerns" – C. K. Gupta, Jatinder Pal Singh, Priya Chopra and Arijit Chowdhuri – International Symposium on Ciliate Biology (ISCB 2018) 4 – 6 April 2018, India Habitat Centre, New Delhi, INDIA pp 108

Publications by Students under aegis of Star College

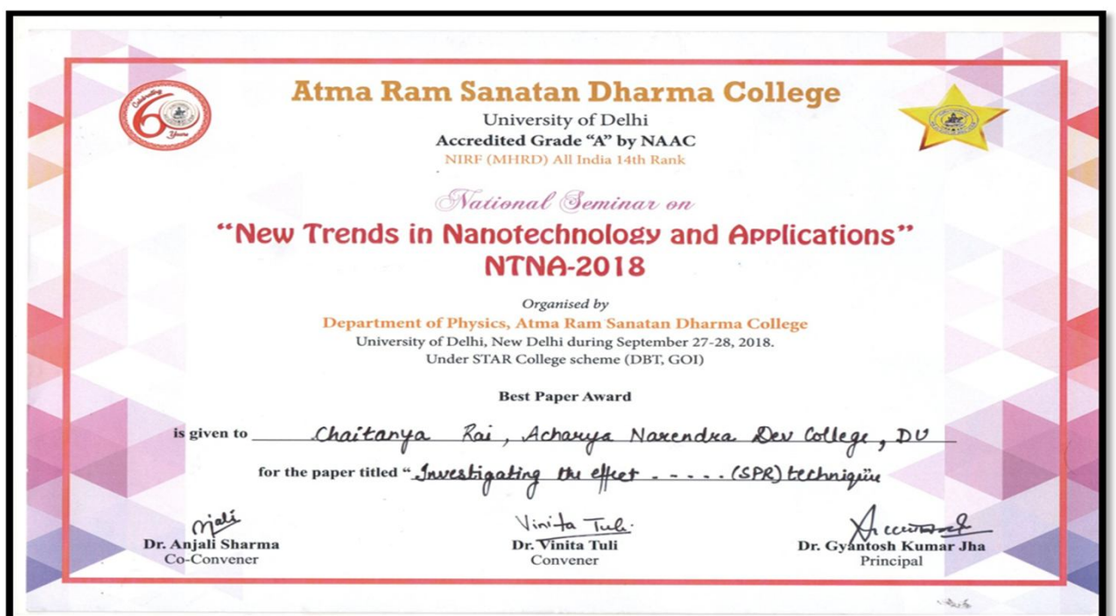
"Potential health risks arising from Ambient Air Pollution (AAP) due to variation in PM_{10}, SO_x, NO_x and CO concentration levels in New Delhi, Bengaluru (India) and Ljubljana (Slovenia): A spatio-temporal study" - Arijit Chowdhuri, Priya Chopra, Jatinder Pal Singh, A. Gupta and C. K. Gupta – International Symposium on Ciliate Biology (ISCB 2018) 4 – 6 April 2018, India Habitat Centre, New Delhi, INDIA pp 111

Carbon Dioxide (CO_2) detection at room temperature using Graphene Oxide (GO) coating on Quartz Crystal Microbalance (QCM)" – Jatinder Pal Singh, Siddharth Das, Priya Chopra, S. Kumar, A. Garg, C. K. Gupta and Arijit Chowdhuri – 2nd National Conference on New Trends in Nanotechnology and Applications (NTNA - 2020), 06 - 07 February 2020 held at Atma Ram Sanatan Dharm College (University of Delhi) – OT 11

– This work received best Oral Presentation award

Investigating carbon dioxide gas sensing characteristics of Graphene oxide (GO) films using a Quartz Crystal Microbalance (QCM) based device" – Siddharth Das, Jatinder Pal Singh, Akash Gupta, Shani Kumar, Amit Garg and Arijit Chowdhuri - National Seminar on New Trends in Nanotechnology and Applications (NTNA - 2018), 27 – 28 September 2018 held at Atma Ram Sanatan Dharm College (University of Delhi) pp 03

Accolades won by students....



Atma Ram Sanatan Dharma College
University of Delhi
Accredited Grade "A" by NAAC
NIRF (MHRD) All India 14th Rank

National Seminar on
"New Trends in Nanotechnology and Applications"
NTNA-2018

Organised by
Department of Physics, Atma Ram Sanatan Dharma College
University of Delhi, New Delhi during September 27-28, 2018.
Under STAR College scheme (DBT, GOI)

Best Paper Award

is given to Chaitanya Rai, Acharya Narendra Dev College, DU

for the paper titled "Investigating the effect ..... (SPR) technique

Dr. Anjali Sharma, Co-Convener
Dr. Vinita Tuli, Convener
Dr. Gyantosh Kumar Jha, Principal

Atma Ram Sanatan Dharma College
University of Delhi
Accredited Grade "A" by NAAC
NIRF (MHRD) All India 14th Rank

National Seminar on
"New Trends in Nanotechnology and Applications"
NTNA-2018

Organised by
Department of Physics, Atma Ram Sanatan Dharma College
University of Delhi, New Delhi during September 27-28, 2018.
Under STAR College scheme (DBT, GOI)

Best Paper Award

is given to Senjuti Sengupta, Acharya Narendra Dev College, DU

for the paper titled "Investigating the effect ..... (SPR) technique

Dr. Anjali Sharma, Co-Convener
Dr. Vinita Tuli, Convener
Dr. Gyantosh Kumar Jha, Principal

Excellence beyond the classroom

S. No	AWARD	STUDENT
1.	First prize for oral presentation on “Measuring the size of quantum dots using a low cost CCD “ at SPIE 2014, Kolkata	Priyanka Kachru, Ananya Paul and Shatakshi Singh [B.Sc. (H) Physics]
2.	Best display award in Innovation plaza at Antardhwani 2015	Avinash Kr. Sudhanshu, Deepak Verma [B.Sc. Physical Sc. with Electronics]
3.	Best innovative idea award in Innovation plaza at Antardhwani 2015	Nikhil Verma, Saptarshi Chakroborti, Shobha Badola [B.Sc. Physical Sc. with Electronics]
4.	Selected at National level Robotic Competition (2014) organized by IIT Bombay	Avinash Kr., Shudanshu [B.Sc. Physical Sc. with Electronics]
5.	First prize in painting competition 'Art Gallery: DU Artist' at Antardhwani 2015	Rachita Thaldi [B.Sc. (H) Physics]
6.	First prize in college in Youth Parliament, 2015	Apeksha Pandey [B.Sc. (H) Physics]

Excellence.....contd.

- **Mr. Avinash Kumar Sudhanshu** - awarded best presentation prize at '7th National Level Science Symposium - 2014' on "Recent Trends in Science and Technology" sponsored by 'Gujarat Council of Science and Technology' at Christ College, Rajkot on February 23, 2014.

- **Ms. Phalguni Mathur et.al.** presented a paper on 'Initiatives taken by undergraduates in promoting science at the school level' at Academic Congress, Enabling the Young: Redefining Education, University of Delhi held from September 6 - 7, 2012.

Students at various conferences / workshops

Bidyut Bikash Bora, Vivek Trivedi, Shatakshi, Salil Batabyal, Shreyak Chakraborthy (B.Sc. Hons. Physics)	Attended a workshop on " Science for Nation Building " at IUAC on February, 28, 2015
Vivek Trivedi (B.Sc. Hons Physics)	Presented a paper at SPIE International Society for optics and photonics, Conference held in San Diego, CA, USA August 2015
Priyanka Kachru (B.Sc. Hons Physics)	Presented a paper at SPIE International Society for optics and photonics, Conference held in San Diego, CA, USA August , 2014
Mohd. Aiman Ali Raza (B.Sc. Physical Science with Electronics)	Presented a paper at SPIE International Society for optics and photonics, Conference held in San Francisco February, 2014
Avinash Kumar Sudhanshu (PME) (B.Sc. Physical Science with Electronics)	Presented a paper at 4th International Conference on " Software solutions, E-learning, Computer Science Information and Communication on Technology" organized by JNU
	Presented a paper at National Conference organized by Maharaja Agrasen College, University of Delhi
	Presented a paper at National Conference organized by Shaheed Rajguru College of Applied Sciences for Women, University of Delhi
	Participated in 'Robotics Boot Camp 2014' University of Delhi
	Participated in a workshop on 'Line Follower Robotics' organized by Bhaskaracharya College
	Participated in the hands-on workshop on 'New Raspberry Pi B+', organized by RS components in association with Easy Embedded, NOIDA
	Participated in ' Working Model Exhibition' in Tech Innovation Ideal-2014 organized at Ideal Group of Institution, Ghaziabad

Autonomous learning and contribution

URL's of websites/e-resources by our students for academic purpose

1. http://www.bragitoff.com/
   by Manas Sharma (B.Sc. (H)/Physics/VIth semester)

2. http://graspverum.blogspot.in/2016/01/sun-tracking-solar-panel-working-demo.html
   by Munendra Singh (B.Sc. (H)/Physics/VIth semester)

3. https://sourceforge.net/projects/livmach/
   by Shreyak Chakraborty (B.Sc. (H)/Physics/VIth semester)

4. http://delhi-south.academia.edu/ShreyakChakraborty
   by Shreyak Chakraborty (B.Sc. (H)/Physics/VIth semester)

5. http://sajagsasa.wix.com/statrecon
   by Shashank Kumar (B.Sc. (H)/Physics/VIth semester)

Illustrious and industrious Alumnae

ALUMNAE

"The teaching staff of ANDC is very supportive. I salute my teachers for this."

Dr. Deepak Kumar
Lecturer Physics
Civil Gazetted officer Group "A"
Ministry of Defense (Govt. of India)

Dr. Poonam Mehta
Assistant Professor (UGC)
School of Physical Sciences,
JNU

Dr. G.Vinitha
Assist. Prof. (Senior)
Physics School of
Advanced Sciences
VIT Chennai

"I am thankful to all the teachers who guided me at every moment apart from studies and helped me to achieve success in my life."

Dr, Rajan Jha
Asst. Professor
School of basic
Sciences, IIT
Bhubaneswar

"I was fortunate to be part of such premier institute where highly knowledgeable teachers were motivating and administration was completely supportive."

Dr. Yogesh Kumar
Assist. Prof.
Deshb[illegible]College, DU

"I appreciate the staff for their positive attitude & ability to motivate students contribute towards a good cause."

Dr. Divya Haridas
Assist. Prof.
Keshav
Mahavidyalaya
University of Delhi

"I am indebted to my teachers who are true mentors & have enriched my life with knowledge. College has bestowed me with some beautiful memories to cherish forever."

Dr. Rashmi Menon
Assist. Prof.
Kalindi College
University of
Delhi

"My deepest fears was if would I ever be able get success in my life & to my surprise I am able to achieve what I wanted to be. It is because College had prepared me for it."

"Each book I read in college tend to told me who I am, which gave direction to my life & finally I decided that education is the best provision for my life journey."

Satish Rajouria
Assistant Professor
Zakir Hussain Delhi
College, DU

ALUMNI

Ms. Neha Singh

Block development officer, UPPSC-2013

"I feel proud to be associated with ANDC, where highly motivating & supportive teachers help students in a conducive environment to realize their full potential not only in academics but also in preparing for the future."

Mr. Dinesh Verma

PhD fellow, IIT Mumbai

"My pleasant memories in the college: regular classes, useful interaction with faculty and supportive friends."

Mr. Jitender

S R F, Plasmonics & Integrated Optic Devices, IIT, Delhi

"A well-disciplined culture of the college with excellent guiding faculty members & never dying friends helped me to become more responsible, disciplined & self-Motivating."

Mr. Aiman Ali Raza

Pursuing Masters in CIMET – 2nd semester, University Jean Monnet, France

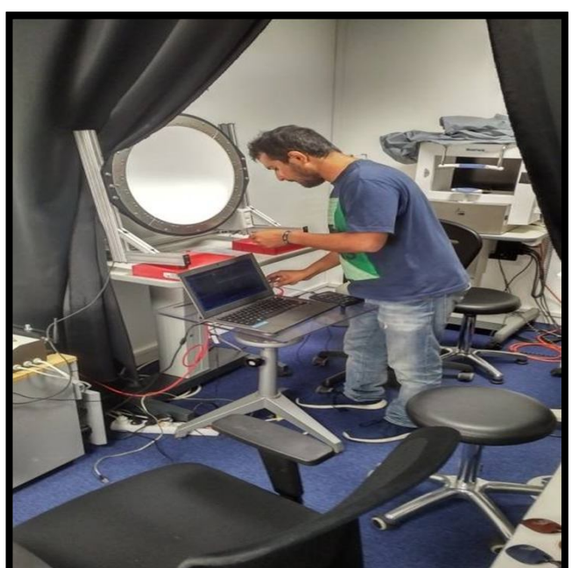
ANDC has played an extremely important role in shaping my career and has enabled me to reach at this point. ANDC has a marvelous appetite to identify talents in every single student and guide them to the correct path. I am also very proud of the fact that ANDC is one of the very few colleges of Delhi which are conveniently designed to foster the growth of our specially-abled friends

Recent UG Research trained Alumnae

THEN

NOW

Essilor International, Paris, France
University of Lyon, France



Mohd. Aiman Ali Raza

(2011 – 14)

B.Sc. Physical Sciences (Electronics)

Finished his Masters at CIMET (Color in Informatics and Media Technology) as Erasmus Fellow with course work at the following European Universities

- **Ecole Nationale des Travaux Publics de l'Etat, Lyon, FRANCE (Master Thesis).**
- **University of Eastern Finland, Joensuu, FINLAND, 2016 Semester III**
- **Université Jean Monnet, Saint Etienne, FRANCE, 2015-16 Semester I-II**

Presently working with Essilor International, Paris, FRANCE as a R&D Scientist in collaboration with ENTPE, University of Lyon as a doctoral researcher. His current project is to develop a new technique to model sun glasses which provide a natural color vision at the same time.

Experiences at Acharya Narendra Dev College :

- **Ex-Group Leader of SPIE Optics outreach Programme under SPIE-Univ of Delhi at ANDC Student Chapter**
- **Attended SPIE Photonics West-2014 held in San Francisco, USA.**
- **Workshop on Science and Technology of Sensors organized by DRDO, India.**
- **Undergraduate Innovation Research Project on Development of Gas Sensors for sensing 2013-14, ANDC, University of Delhi.**

BISHAL KUMAR DAS

(2013 - 16)

B.Sc. (H) Botany

Pursuing Ph.D. at Czech University of Life Sciences, Prague, CZECH, EUROPE

Experiences at Acharya Narendra Dev College:

Publications in Journals: -

1. Assuaging Human Health Concerns through Analysis of Physicochemical Parameters of Potable Water Samples in Delhi. 2016. **Journal of Innovation for Inclusive Development.**
2. A Particulate Matter Based Real-Time Analysis of Odd-Even Car Experiment in Delhi. 2016. **DU Journal of Undergraduate Research and Innovation.**

- **Founder member of the science society, "Think Lab" at Acharya Narendra Dev College. In collaboration with Homi Bhaba Centre for Science and Education, Tata Institute of Fundamental Research.**

- **Conducted a study, named as "A study of ambient air pollution during the winter months in Delhi" under ELITE fellowship at Acharya Narendra Dev College (January-February 2015).**

- **Worked in a project- "Isolation and Identification of Microalgae". Funded under ELITE fellowship by Acharya Narendra Dev College (June-July 2015).**

- **Presented work on CO toxicity, titled as "Heater operation within the closed confines of a car during winter months in Delhi: Evidence of Toxic CO generation", at a National Conference held at University of Delhi (2-3 March 2015), organized by Deen Dayal Upadhyaya College. (ISBN: 978-93-5235-339-2).**

Srishti Vajpayee

(2014 - 17)

B.Sc. (H) Biomedical Sciences

Joined **Radboud University, Nijmegen, NETHERLANDS** for masters in Biomedical Science with specialization in Molecular and Cellular Research. Currently at **University of Freiburg, GERMANY**

Experiences at Acharya Narendra Dev College :

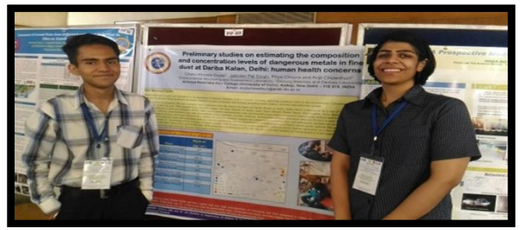
- **Was a part of the project titled as "Search for a novel protein in bacteria through analyzing its proteogenomics data using Genosuite" under ELITE fellowship at Acharya Narendra Dev College. (June-July 2015)**

- **Worked in a project- "Design, synthesis and biological evaluation of oxindole-based isoxazolines towards the analog synthesis of marine natural product Flustraminol-B" funded under Delhi University Innovation Project (DUIP) fellowship by Delhi University (September 2015-October 2016).**

- **Attended hands-on workshop on "Proteogenomics by Mass spectroscopy" held at Bhaskaracharya College of Applied Sciences, University of Delhi (January 2015).**

- **Was part of an instructional workshop on "Gene expression analysis: hands – on using microarray and next generation sequencing data" held at Acharya Narendra Dev College, University of Delhi (March 2015).**

- **Was also a member of college's science society which is an autonomous lab being run completely by students where I did a project on "Trends in the Regeneration of Head and Tail in an Earthworm, Eisenia fetida" (2015).**



Jatinder Pal Singh and Priya Chopra

(2015 - 18)

B.Sc. (H) Physics

Masters at Bonn –Cologne Graduate School of Physics and Astronomy, University of Bonn, Germany

Papers in refereed National Journals

1. 'Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India – C. K. Gupta, Jatinder Pal Singh, Priya Chopra, V. B. Raj and Arijit Chowdhuri – DU Journal of Undergraduate Research and Innovation Volume 3, Issue 2, (2018) pp 71 - 81

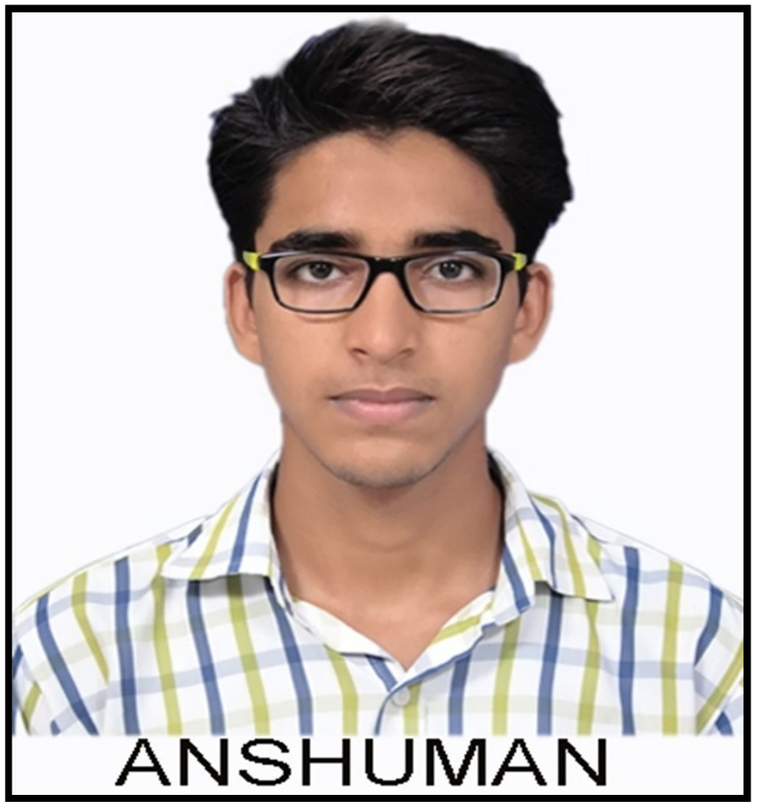
Papers in International Conferences (refereed):

1. **"Preliminary studies on estimating the composition and concentration levels of dangerous metals in fine dust at Dariba Kalan, Delhi: human health concerns" – C. K. Gupta, Jatinder Pal Singh, Priya Chopra and Arijit Chowdhuri and**

2. "Potential health risks arising from Ambient Air Pollution (AAP) due to variation in PM_{10}, SOx, NOx and CO concentration levels in New Delhi, Bengaluru (India) and Ljubljana (Slovenia): A spatio-temporal study" - Arijit Chowdhuri, Priya Chopra, Jatinder Pal Singh, A. Gupta and C. K. Gupta – Int'l. Symposium on Ciliate Biology (ISCB 2018) 4 – 6 April 2018, India Habitat Centre, New Delhi, INDIA

Papers in National Conferences

1. **"Ambient air pollution (AAP) measurements using Electronic Nose at unrestrained MSW landfills located in Delhi" - Arijit Chowdhuri, Priya Chopra, Jatinder P. Singh, V. Bhasker Raj and Charu Khosla Gupta, Innovation Conclave - 2016 , 25 – 26 October 2016**



ANSHUMAN TRIPATHI

(2016 - 19)

B.Sc. (H) Physics

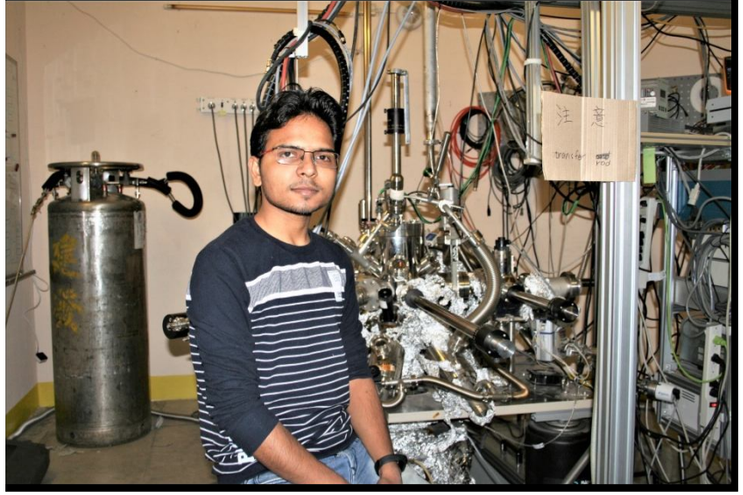
Offered admission in Masters at University of Hamburg, GERMANY; University of Antwerp, BELGIUM; University of Stuttgart, GERMANY; University of Zurich, SWITZERLAND

Presentations in International Conferences (refereed):

"**Room temperature detection of H_2 and H_2S gases by Graphene oxide (GO) films using Surface Plasmon Resonance (SPR) technique" – Anshuman Tripathi,** Y. Shukla, A. Gupta, S. Kumar, A. Garg and Arijit Chowdhuri – International Conference on Advanced Materials Energy & Environmental Sustainability (ICAMEES-2018) 14 – 15 December 2018, University of Petroleum & Energy Studies, Dehradun, Uttarakhand, INDIA pp 37

Presentations in National Conferences:

"**Investigating H_2 and H_2S gas mechanism of Graphene oxide (GO) films using Surface Plasmon Resonance" – Anshuman Tripathi,** Y. Shukla, S. Kumar, A. Garg and Arijit Chowdhuri – National Seminar on New Trends in Nanotechnology and Applications (NTNA-2018), 27 – 28 September 2018 held at Atma Ram Sanatan Dharm College (University of Delhi) pp 05



AAKASH GUPTA

(2016 - 19)

B.Sc. (H) Physics

Pursuing Masters at National Tsing Hua University, TAIWAN

Presentations in International Conferences (refereed):

"Room temperature detection of H_2 and H_2S gases by Graphene oxide (GO) films using Surface Plasmon Resonance (SPR) technique" – A. Tripathi, Y. Shukla, **Akash Gupta,** S. Kumar, A. Garg and Arijit Chowdhuri – International Conference on Advanced Materials Energy & Environmental Sustainability (ICAMEES-2018) 14 – 15 December 2018, University of Petroleum & Energy Studies, Dehradun, Uttarakhand, INDIA pp 37

Presentations in National Conferences:

"**Investigating carbon dioxide gas sensing characteristics of Graphene oxide (GO) films using a Quartz Crystal Microbalance (QCM) based device" –** S. Das, J. Pal Singh, **Akash Gupta,** S. Kumar, Amit Garg and Arijit Chowdhuri - National Seminar on New Trends in Nanotechnology and Applications (NTNA-2018), 27 – 28 September 2018 held at Atma Ram Sanatan Dharm College (University of Delhi) pp 03

SIDDHARTHA DAS

(2016 - 19)

B.Sc. Physical Science (Electronics)

Offered admission in Masters at University of Dresden, GERMANY; University of Jena, GERMANY, Bonn-Cologne Graduate School, GERMANY

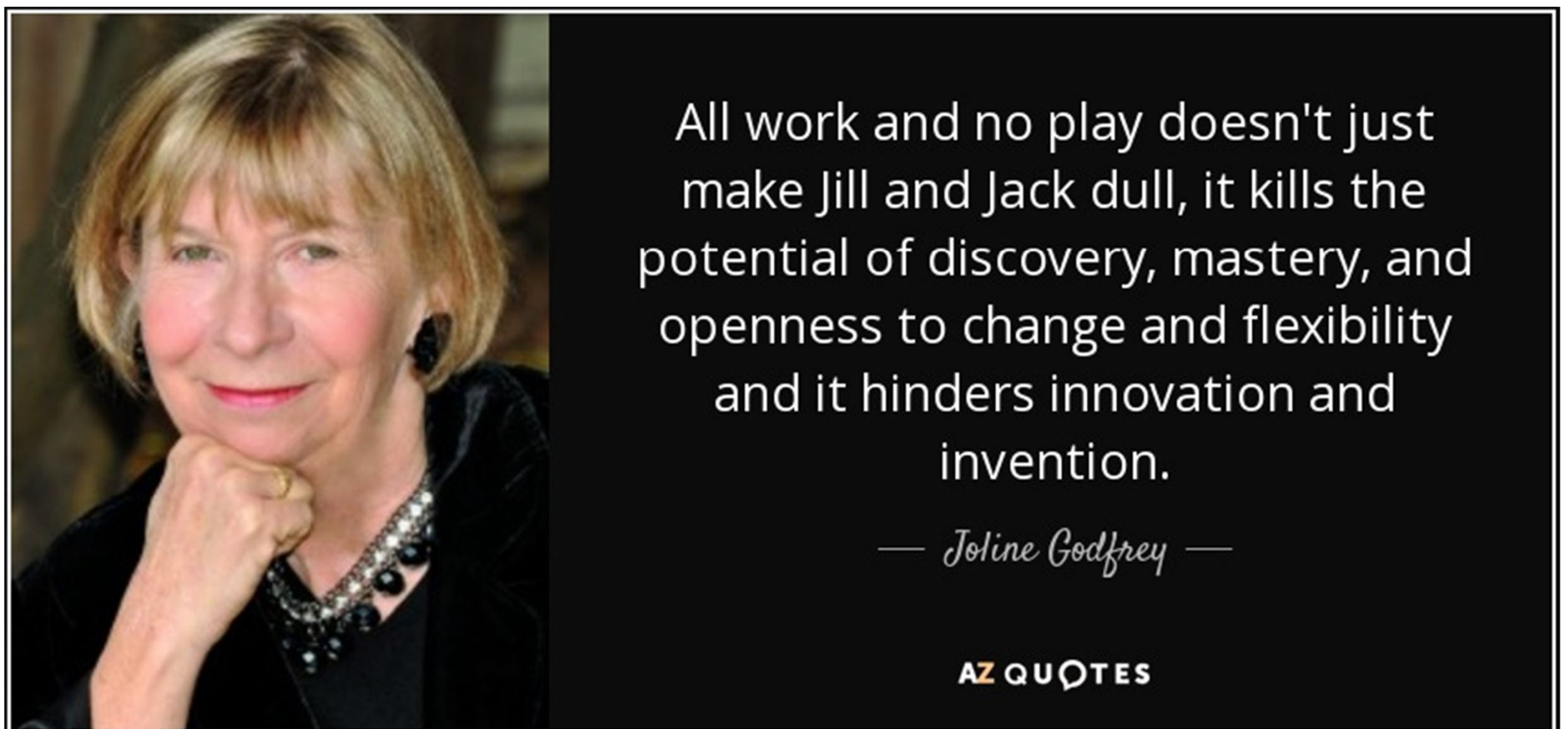
Presentations in International Conferences (refereed):

"**Room temperature detection of H_2 and H_2S gases by Graphene oxide (GO) films using Surface Plasmon Resonance (SPR) technique" –** A. Tripathi, Y. Shukla, Akash Gupta, S. Kumar, A. Garg and Arijit Chowdhuri – International Conference on Advanced Materials Energy & Environmental Sustainability (ICAMEES-2018) 14 – 15 December 2018, University of Petroleum & Energy Studies, Dehradun, Uttarakhand, INDIA pp 37

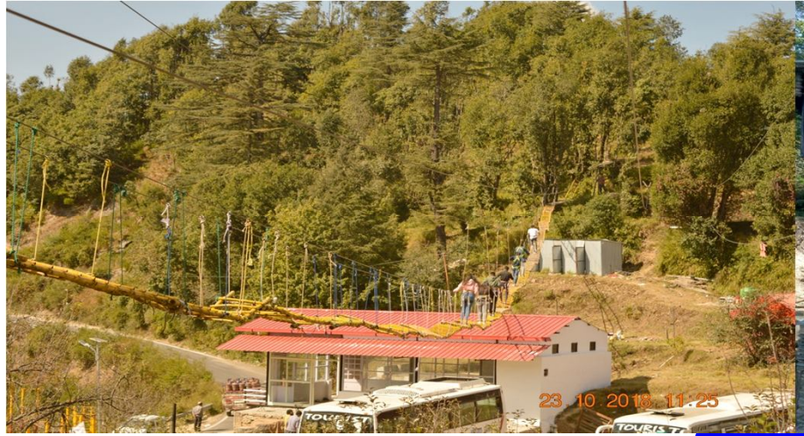
Presentations in National Conferences:

"**Investigating carbon dioxide gas sensing characteristics of Graphene oxide (GO) films using a Quartz Crystal Microbalance (QCM) based device" –** **Siddhartha Das,** J. Pal Singh, A. Gupta, S. Kumar, Amit Garg and Arijit Chowdhuri **-** National Seminar on New Trends in Nanotechnology and Applications (NTNA-2018), 27 – 28 September 2018 held at Atma Ram Sanatan Dharm College (University of Delhi) pp 03

All work and NO play????



Discovering INDIA through EXPLORE



Trip to Kanatal & Mussoorie

In October 2018, a four night three day trip of 45 students was organized with five teachers and five lab staffs to the queen of hills **Mussoorie** and **Kanatal**. At Kanatal students enjoyed the scenic surrounding by mountains and rivers, with breathtaking views and scenery. They also took the blessings at **Surkanda devi** temple, which is situated near Kanatal. This temple is at an altitude of about 2756 metres. It is one of the Shakti Peethas and as per the mythology it's name is because Sati's head fell at the spot where the modern temple of Surkhanda Devi stands. Mussoorie also captivated the students with the panoramic views and will keep on amusing them in memories too in future.

Academic VISITS

- **Every year selected students visit prominent research Institutes and participate in various competitions and workshops.**

- **They bring accolades and laurels to the Department and College as well.**

Visits to industry and important laboratories of national eminence

National Physical Laboratory (NPL) and Inter University Accelerator Centre (IUAC)

Every year on National Science Day - 28 February students from B.Sc. (H) Physics and B.Sc. Physical Science (Electronics) are taken to visit the facilities of Inter University Accelerator Centre (IUAC formerly Nuclear Science Centre) and National Physical laboratory (NPL). This allows them to feel research in frontier areas of science closely while giving them an opportunity to interact with eminent scientists.

Electronic Materials & Devices Laboratory (EMDL), Department of Physics & Astrophysics, University of Delhi, Delhi

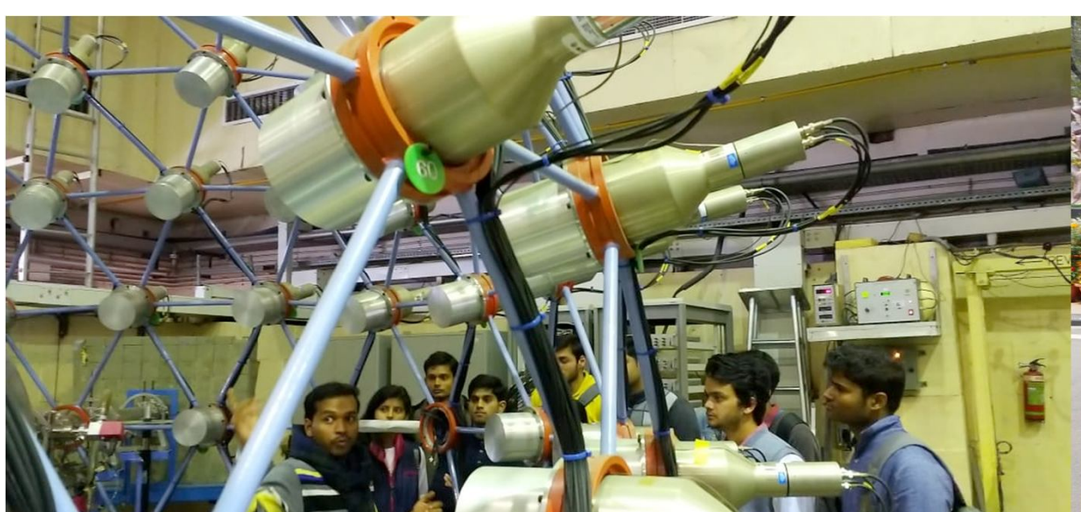
Students of Final year B.Sc. (H) Physics are taken to EMDL, Department of Physics & Astrophysics, University of Delhi and introduced to frontier areas of research in experimental material science. The students learn rudiments of thin film deposition techniques including RF Sputtering, Thermal Evaporation, Sol-gel and Pulsed LASER Deposition (PLD)

Visits to industry and important laboratories of national eminence

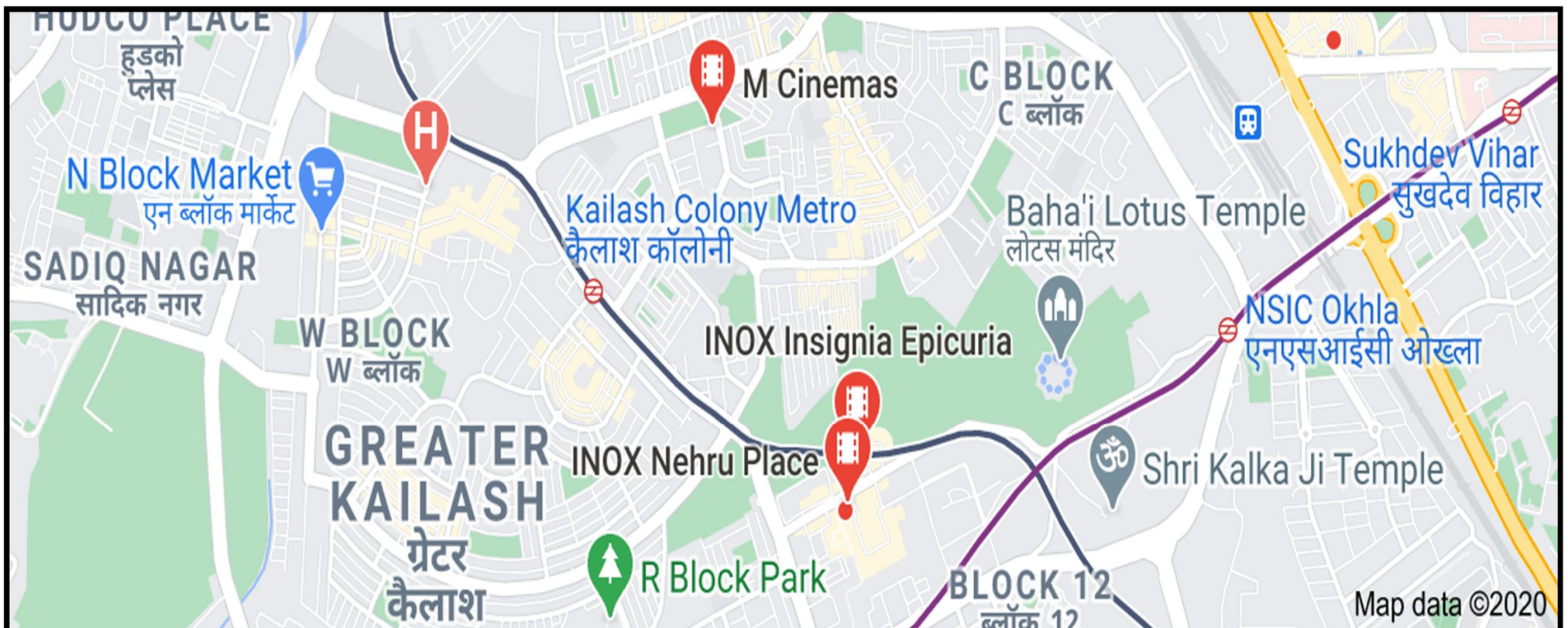
Microelectronic Devices Fabrication Laboratory, University of Delhi, Delhi

Students of Final year B.Sc. (H) Physics and B.Sc. Physical Science (Electronics) are taken to Fab. Lab. and are given a hands-on feeling of working in an advanced semiconductor fabrication laboratory. Specifically, the students learn finer nuances of Integrated Chip manufacturing in a Class-1000 room wearing anti-static clothing.

They also get exposure to wafer fabrication/characterization equipments including thin film profilometer (Veeco, USA), Wafer Dicer (Disco, Japan), E-beam evaporation (6 KW gun Telemark, USA), Probe Station (Cascade, USA), Semiconductor Characterization System (Keithley, USA), Wire Bonder (Westbond, USA),Mask Aligner (Karl Suss, Europe) and Thermal Oxidation Furnace (MRL, UK) to name a few.



Multiplexes near the College



Impact of methodology pursued in Physics Department

- Undergraduate students of the college exposed to cutting-edge technologies existing worldwide in frontier areas of science and more so which are important from the Indian perspective
- Hands-on practical training imparted and exposure to latest tools for promotion of inter-disciplinary studies. This has helped some students secure fully funded postgraduate positions in reputed Universities abroad
- Upgradation of existing undergraduate teaching and training framework to include state-of-the-art technical research projects and summer training workshops
- Faculty and support staff exposed to and trained in the arena of latest scientific research culture and methodology
- Promotion of networking and strengthening of ties amongst research laboratories and institutions for resource sharing and increasing efficiency

College is not just a place where
you'll learn answers to a lot
of life's questions, but also a phase which will
make you question a lot of life's answers
Good Luck.

ANNOUNCEMENT

Filling of option for GE and SEC will be open during the period 20 – 25 November 2020

2 Φ VI