Miranda House
UNIVERSITY OF DELHI

Departmental Annual Report – 3

Departmental Activities: Curriculum and Beyond

Department: Physics

Academic Year: 2016 -17 (for the period 1.7.2016 to 30.6.2017)

Department Society and its Office Bearers:

Physics Society, Vidyut organizes various seminars and workshops to create a holistic environment of learning beyond classrooms. Activities also include arranging Freshers' Welcome, Farewell party and Student Excursion. Physics Society works closely with the DS Kothari Centre to organize many of its seminars and workshops.

Office Bearers for 2016 -17:

President	Vice President	General Secretary	Joint Secretary	Treasurer
Shreya Kapoor	Sugandh Sirohi	Rashmi	Yoshita Baruah	Shefali Garg

Staff Advisors:

Dr. Abha Dev Habib

Dr. Monika Tomar

Dr. Bilasini Devi Naorem

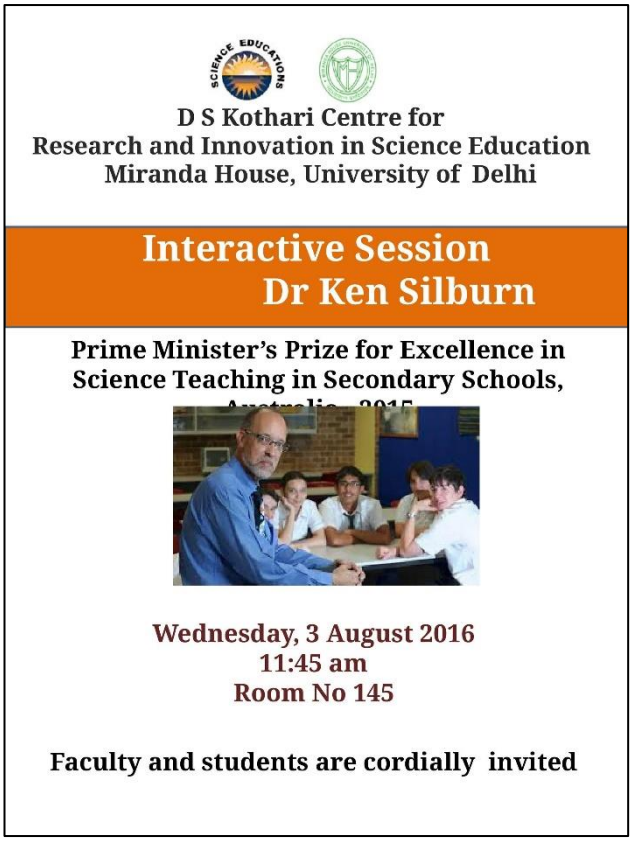
Ms. Sumana Devi

Part B.1

Seminars/conferences/workshops conducted by the Department

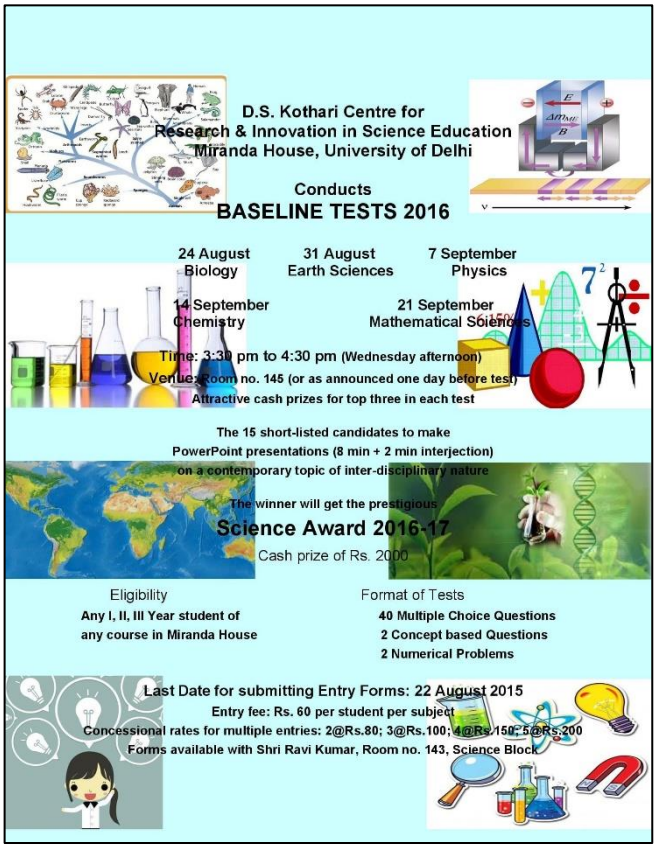
The Academic year 2016-17 for the Physics Department of Miranda House started with an extremely informative **lecture by Dr. Ken Silburn on Innovation in Science Education on 5.8.2016**. Dr. Ken Silburn is the head of Science of Casula High School Sydney, Australia and has received the 2015 Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools. Dr. Silburn gave students a perspective to think beyond textbooks and to experience Physics to its fullest.

The lecture was held in Room Number 145 and saw participation of over 100 students of the Department.



As the Gravitational Waves became a major topic of discussion among the physicists and scientists all around the world, the Physics Society organised **a talk on Gravitational Waves by Prof Patrick Das Gupta**, Department of Physics and Astrophysics, University of Delhi **on 22.8.2016.**

The session was open to students of Miranda House and was held in Room Number 145. Over 80 students attended this popular lecture.



Baseline Test for Physics was held on 7.9.2016 under the aegis of DS Kothari Centre. It was held in the offline mode. 17 students appeared for the written test. A presentation round was scheduled for February 2017 to select the winner and runner-up, Science Award 2015-16.

The Physics Society in collaboration with D S Kothari Center for Research and Innovation and NITUI technologies organized **a workshop on 3-D printing** for the Physics department students on 18.10.2016. 40 students participated in the series of workshops held.

D S KOTHARI CENTRE FOR RESEARCH AND INNOVATION IN SCIENCE EDUCATION

And

VIDYUT PHYSICS SOCIETY

Present

A workshop

On

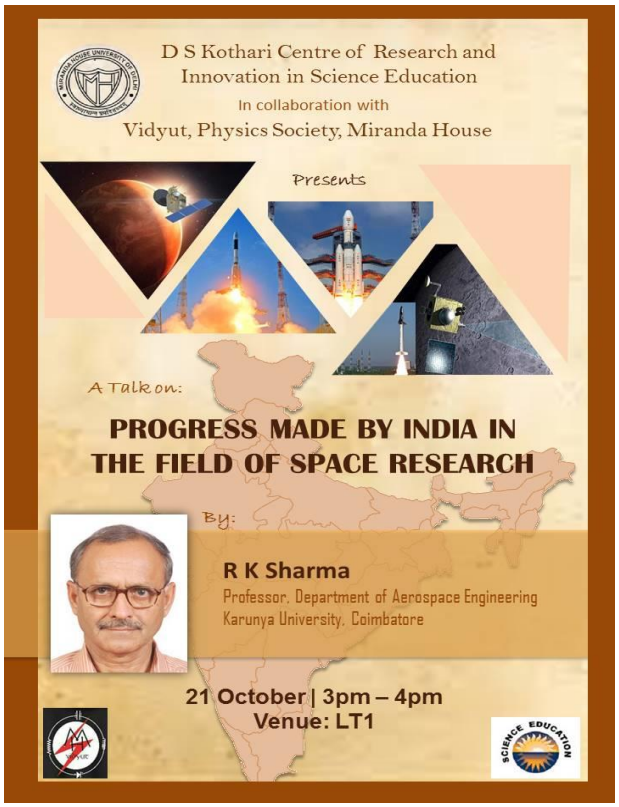
3-D PRINTING AND IT'S APPLICATIONS

DATE: 18 OCTOBER 2016

TIME: 3:00 – 5:00 pm

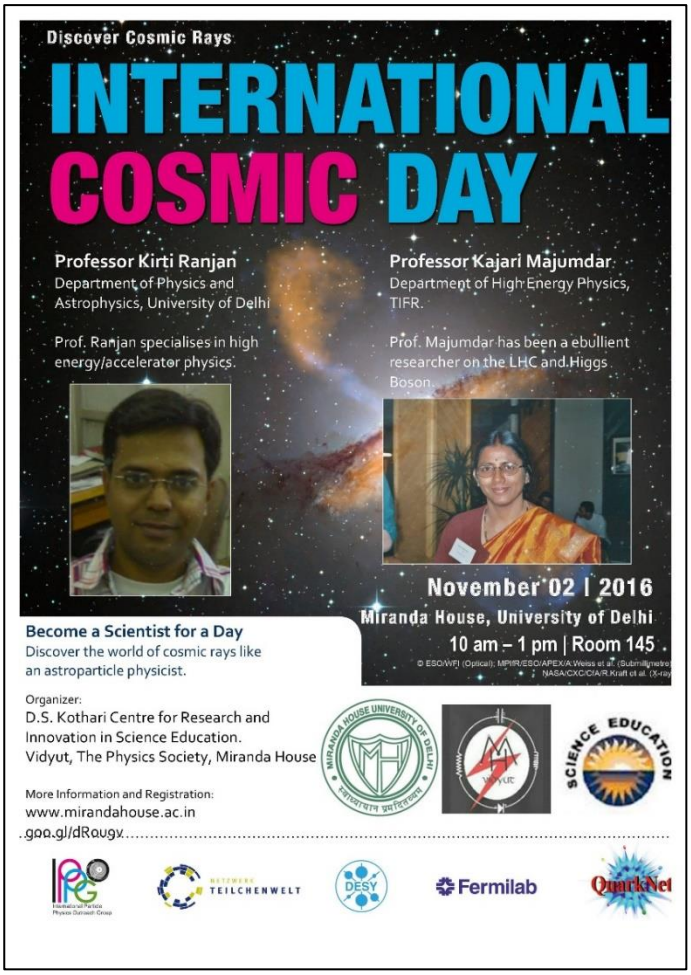
VENUE: D.S.K.C lab 2, 2nd floor

NOTE: ONLY THOSE STUDENTS WHO HAVE CONFIRMED ON GOOGLE FORMS ARE ELIGIBLE TO PARTICIPATE.



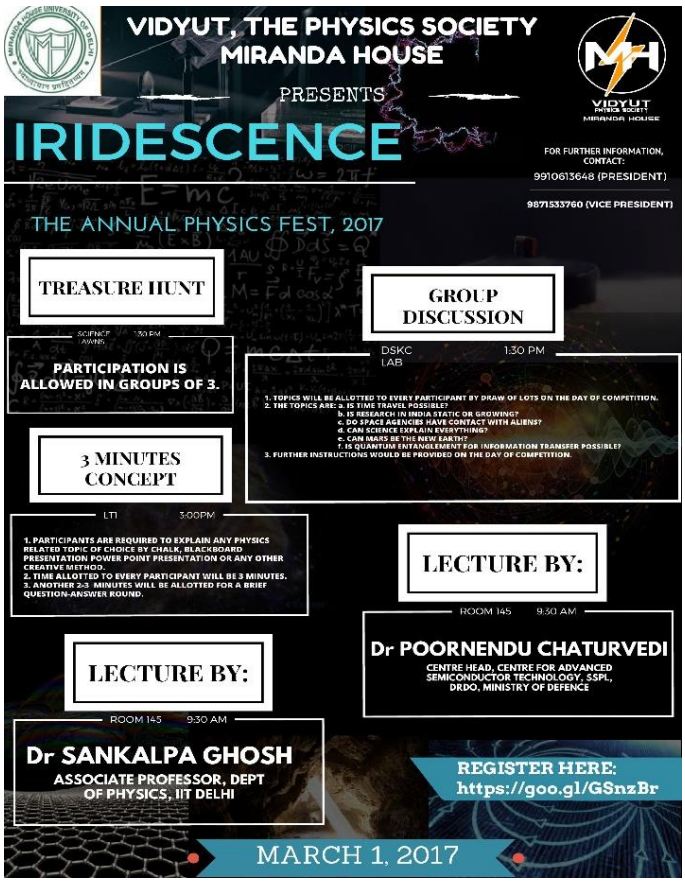
The Physics Society in collaboration with DS Kothari Centre organized **a talk on "Progress made by India in field of Space Research" by Professor R K Sharma on 21.10.2016**. The talk was organized in LT1, Physics Department from 3 pm - 4 pm. Over 60 students attended the session.

The Physics Society in collaboration with D S Kothari Centre for Research and Innovation, DESY Germany and Fermilab **celebrated International Cosmic Day by organizing lectures by Professor Kirti Ranjan and Professor Kajari Mazumdar on 2.11.2016.** Professor Kirti Ranjan is from Department of Physics and Astrophysics, University of Delhi and Professor Kajari Mazumdar is a renowned Professor at Department of High Energy Physics, TIFR. Over 80 students of the Physics Department attended the event.



A seminar on Energy Harvesting by Prof Vinay Gupta, Department of Physics and Astrophysics, University of Delhi **on 9.1.2017**. In 2016-17, the Physics Department decided to offer the paper "Renewable Energy and Energy Harvesting" under SEC in the project mode to provide experiential learning to students. This seminar was held to motivate students to design projects with the aim to harvest energy. The seminar included demonstrations. The seminar was held in Lab- I, over 80 students of the IVth semester attended the workshop.

Another session of the **Workshop on 3D Printing** Technologies was organized by the Physics Society in collaboration of DS Kothari Centre on 9.2.2017. Over 40 students attended this workshop held in the DSKC Lab. The event was sponsored by DBT.

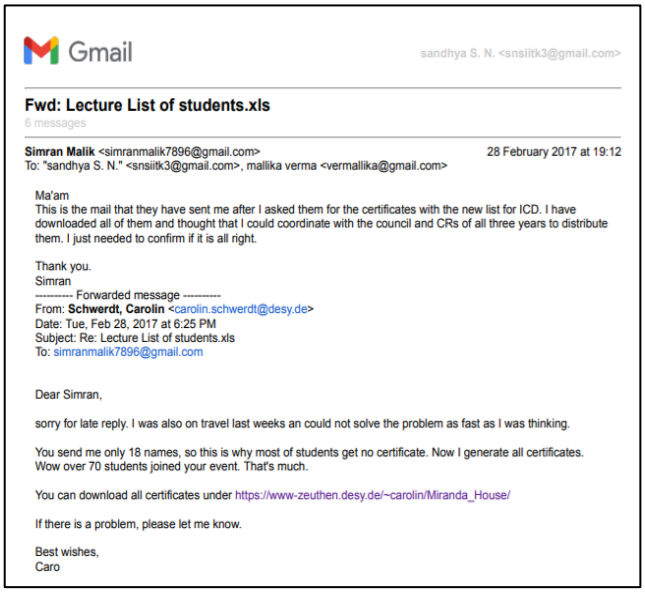


The Physics Society organized its **Annual Fest, Iridescence on 1.3.2017**. Like every year, the Physics Society planned a day full of activities for students. Over 250 students of the Department participated in the Annual Fest. The Fest also saw participation of students from other colleges.

The Fest was inaugurated with **a Lecture "A Walk into the Quantum World at Ultra Low Temperatures" by Dr. Sankalpa Ghosh**, Associate Professor, Department of Physics, IIT, Delhi.

The Fest also hosted another **lecture "Semiconductors for Defence" by Dr Poormendu Chaturvedi**, Centre Head, Centre for Advanced Semiconductor Technology, SSPL, DRDO, Ministry of Defence, Delhi.

A **5-days workshop to celebrate International Muon Week 2017** was organized from 20.3.2017 to 24.3.2017 as part of worldwide Cosmic Ray Flux Study was organized in association with DS Kothari Center, Fermi Lab and QuarkNet, India. Students analysed the muon data from the e-lab (Fermi lab) online. During the Muon Week students had an in-house presentation/discussion of their work. Students presented their work in the online video-conference along with other participants across the world. 17 students participated in the Muon Week.



Gmail sandhya S. N. <snsiitk3@gmail.com>

Fwd: Lecture List of students.xls
6 messages

Simran Malik <simranmalik7896@gmail.com> 28 February 2017 at 19:12
To: "sandhya S. N." <snsiitk3@gmail.com>, mallika verma <vermallika@gmail.com>

Ma'am
This is the mail that they have sent me after I asked them for the certificates with the new list for ICD. I have downloaded all of them and thought that I could coordinate with the council and CRs of all three years to distribute them. I just needed to confirm if it is all right.

Thank you.
Simran
--------- Forwarded message ---------
From: **Schwerdt, Carolin** <carolin.schwerdt@desy.de>
Date: Tue, Feb 28, 2017 at 6:25 PM
Subject: Re: Lecture List of students.xls
To: simranmalik7896@gmail.com

Dear Simran,

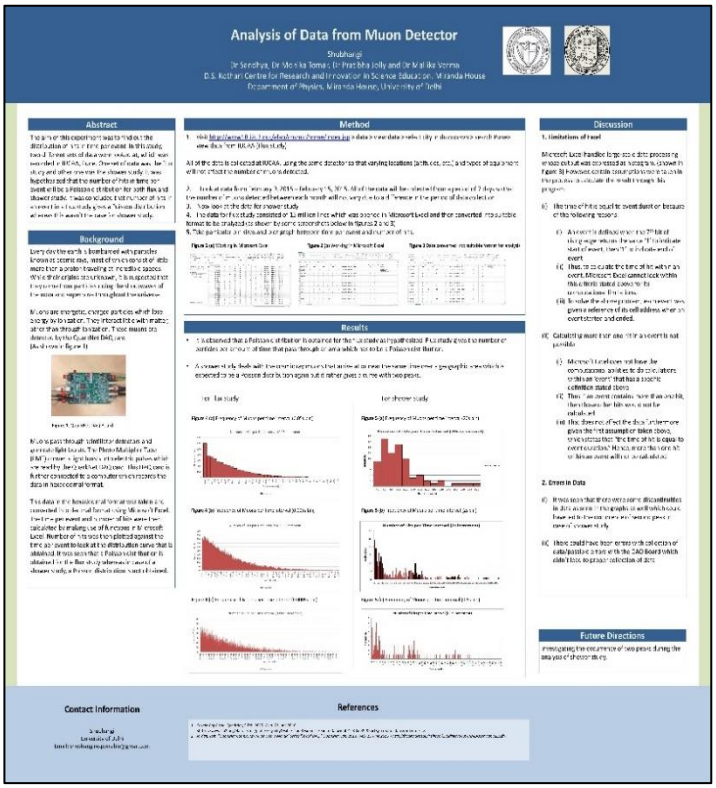
sorry for late reply. I was also on travel last weeks an could not solve the problem as fast as I was thinking.

You send me only 18 names, so this is why most of students get no certificate. Now I generate all certificates. Wow over 70 students joined your event. That's much.

You can download all certificates under https://www-zeuthen.desy.de/~carolin/Miranda_House/

If there is a problem, please let me know.

Best wishes,
Caro



Analysis of Data from Muon Detector

Shubhangi, Dr Sandhya, Dr Mamika Tomar, Dr Pratibha Jolly and Dr Mallika Verma
D.S. Kothari Centre for Research and Innovation in Science Education, Miranda House
Department of Physics, Miranda House, University of Delhi

Abstract
Background
Method
Results
Discussion
Future Directions
Contact Information
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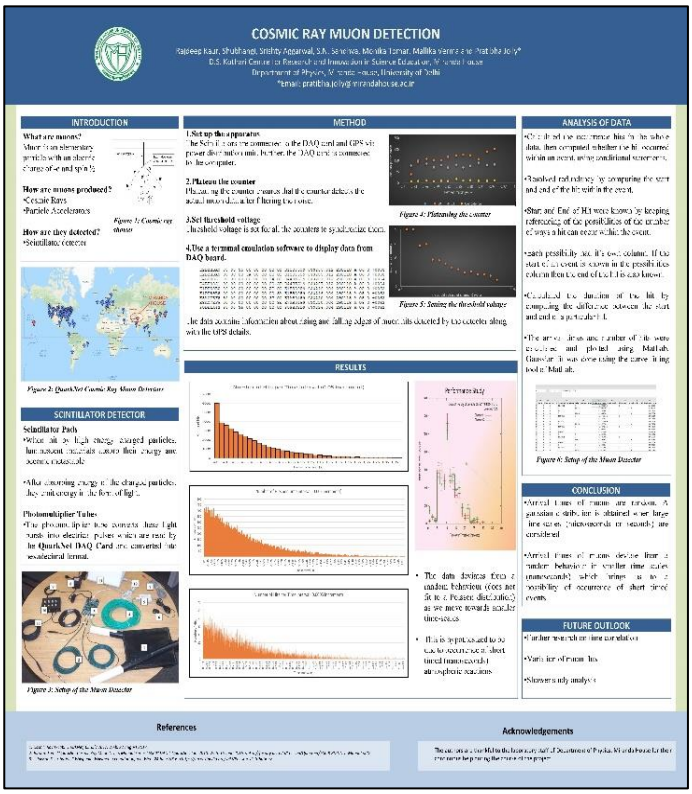

COSMIC RAY MUON DETECTION

Rajeeev Kaur, Shubhangi, Srishty Aggarwal, S.N. Sandhya, Mamika Tomar, Mallika Verma and Pratibha Jolly*
D.S. Kothari Centre for Research and Innovation in Science Education, Miranda House
Department of Physics, Miranda House, University of Delhi
*Email: pratibha.jolly@mirandahouse.ac.in

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METHOD
ANALYSIS OF DATA
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Acknowledgements

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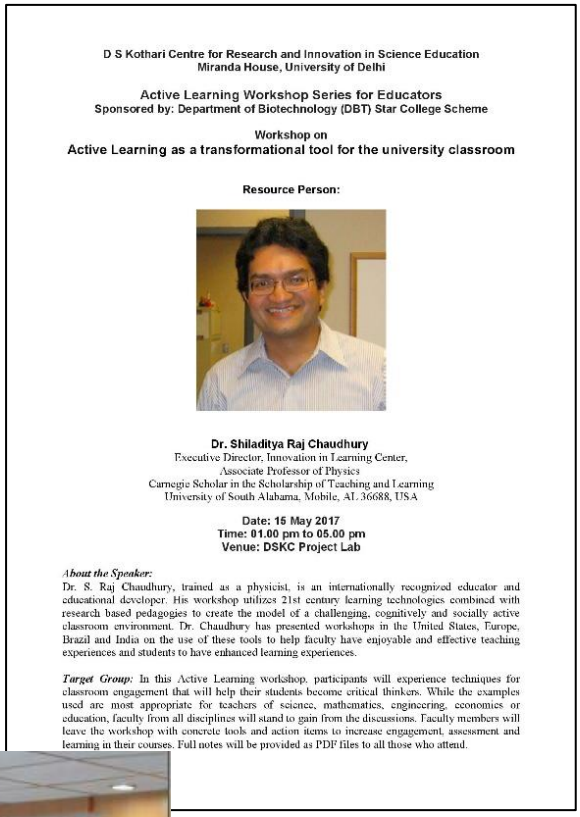
A workshop **"Using Geometric Reasoning to Teach Vector Calculus in Mathematics and Physics" by Professor Tevian Dray**, Department of Mathematics, Oregon State University **and Professor Corrine A Manoque**, Department of Physics, Oregon State University was organized in collaboration with DS Kothari Center on 28.3.2017. Over 50 students participated in the workshop.

The Physics Department was one of the participating Departments in the workshop **"Active Learning as a transformational tool for the university classroom"** organized by the DS Kothari Center on 15.5.2017. The resource person for the workshop was **Dr. Shiladitya Raj Chaudhury**; Executive Director, Innovation in Learning Center and Associate Professor of Physics, Carnegie Scholar in the Scholarship of Teaching and Learning, University of South Alabama, USA. 34 teachers, including 9 faculty members of Physics Department, participated in the workshop.



D S Kothari Centre for Research and Innovation in Science Education
Miranda House, University of Delhi

Active Learning Workshop Series for Educators
Sponsored by: Department of Biotechnology (DBT) Star College Scheme

Workshop on
Active Learning as a transformational tool for the university classroom

Resource Person:

Date: 15 May 2017
Time: 01.00 pm to 05.00 pm
Venue: DSKC Project Lab

About the Speaker:
Dr. S. Raj Chaudhury, trained as a physicist, is an internationally recognized educator and educational developer. His workshop utilizes 21st century learning technologies combined with research based pedagogies to create the model of a challenging, cognitively and socially active classroom environment. Dr. Chaudhury has presented workshops in the United States, Europe, Brazil and India on the use of these tools to help faculty have enjoyable and effective teaching experiences and students to have enhanced learning experiences.

Target Group: In this Active Learning workshop, participants will experience techniques for classroom engagement that will help their students become critical thinkers. While the examples used are most appropriate for teachers of science, mathematics, engineering, economics or education, faculty from all disciplines will stand to gain from the discussions. Faculty members will leave the workshop with concrete tools and action items to increase engagement, assessment and learning in their courses. Full notes will be provided as PDF files to all those who attend.

Two more **workshops were conducted on 3D Printing Techniques** at the Department of Physics in collaboration with DS Kothari Centre **on 13.6.2017 and 22.6.2017**. 40 students participated in these workshops.

3D printer workshop for summer students

Mallika Verma <mallika.verma@mirandahouse.ac.in> Mon, 19 Jun 2017, 13:46

to Smriti, Amrita, Bani, Janaki, Jyoti, Monika, Ritu, Saloni, Anuradha, Divakar, sandhya, Geeta, Meeta, Principal, mehul

Dear All

The second 3 D printer workshop will be held on 22 June 2017 from 11 am onwards at DSKC project lab (Room No 312). Please inform you faculty and send your summer workshop students interested in using it to attend it.

Warm Regards
Mallika Verma

I will attend the workshop. | Thanks for the mail. | Thanks, I will be there.

Reply | Reply t

Part B.2

Extension Activities organized

Summer Workshop for Undergraduate Science Students, Flavor of Research: Investigative Projects in Multidisciplinary Contexts held at the D. S. Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi from **1 June to 15 July 2016**

Participation: 5 faculty members of the Physics Department guided 35 undergraduate Physics students from across institutions. Out of 35 students who successfully worked on hands-on projects, 23 students were from BSc (Hons) Physics, Miranda House.

For more info, see:
https://mirandahouse.ac.in/uploads/dskc/summerworkshop/2016%20DSKC%20Summer%20Workshop%20Report.pdf

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As part of virtual-lab initiatives, a workshop for school and college teachers titled ***Online Labs for School Experiments*** was conducted on 11.4. 2017. The workshop was held under the ageies of D.S. Kothari Centre for Research and Innovation in Science Education and DBT Star College Project.

Department of Physics and Chemistry, Miranda House organized the Workshop in collaboration with Amrita University, Kerala.

The Workshop was attended by 31 teachers.

---------- Forwarded message ---------
From: **Mallika Pathak** <mallika.pathak@mirandahouse.ac.in>
Date: Sat, 8 Apr 2017 at 21:07
Subject: Programme schedule to be sent to participants
To: Ritu Arora <arora0824@gmail.com>, Deepti Rawat <Deepti.rawat@mirandahouse.ac.in>, <Sharda.Sonkar@mirandahouse.ac.in>, Bani Roy <bani.roy@mirandahouse.ac.in>, Amrita Tripathi Sheikh <amrita.tripathisheikh@mirandahouse.ac.in>, Mallika Verma <mallika.verma@mirandahouse.ac.in>

Dear Ritu

Please send the programme schedule along with the below write up to the participants(list attached) right away and mark the copy to all of us.

Dear Sir/ Madam

Warm Greetings from Miranda House!!

The Department of Chemistry and Department of Physics, Miranda House in collaboration with Amrita University, Kerala are jointly organizing a ***Workshop for School Teachers*** entitled ***Online Labs for School Experiments*** on **11 April 2017** as per the attached schedule. The workshop is being held under the aegis of DS Kothari Centre for Research and Innovation in Science Education and DBT Star College Project.

The Online Labs is based on the idea that lab experiments can be taught using the Internet, more efficiently and less expensively. The labs can also be made available to students with no access to physical labs or where equipment is not available owing to being scarce or costly. As part of the virtual lab initiative, OLabs emulate a one-on-one tutoring system allowing a student to do the experiment anytime and anywhere. The OLabs support different learning styles and learning preferences through tutorials, animations, videos, graphics, simulations and summary with detailed information. Each lab is designed to give the student a real-life experience to enhance students' learning and understanding of each experiment.

In case of any query please contact

D S Kothari Centre for Research and Innovation in Science Education
Miranda House, University of Delhi

Workshop for School Teachers: Online Labs for School Experiments

Tuesday, 11 April 2017

Venue: DRC, Miranda House

	Tuesday, 11 April 2017
09.30 am to 10.00 am	Registration Venue: Miranda Arcade
10.00 am to 10.30 am	*Inaugural and Welcome Address* Dr. Pratibha Jolly, Principal Miranda House and PI D S Kothari Science Centre
10.30 am to 11:00 am	High Tea
11.00 am to 01.00 pm	**Hands-on Workshop Session**

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Part B.3

Any other event organized as part of students' activities (not listed above)

The Department hosted the **Freshers' Party** for the incoming batch of 2016-17 on 26 August 2016, from 12:45 PM onwards. The event saw huge participation.

The department celebrated the **Teachers' Day** on 5 September 2016 by having a cake cutting ceremony for teachers as well as for the lab staff.

A 4-day **student excursion** was conducted by the Society to Mcleodganj and Dharamshala from 9.9.2016 to 13.9.2016. A total of 45 students, 3 teachers and 3 lab staff went for the excursion. The excursion involved trekking, visiting local tourists' spots like Dal Lake, Buddh Monasteries etc. and shopping in the local market of Mcleodganj. Students also got a chance to see the amazing cricket stadium of Dharamshala surrounded by beautiful Himalayan mountains.

Farwell Party for the outgoing batch of final year students was hosted on Wednesday, 13 April 2017 from 12:45 PM onwards in Room Number 316 (Physics Lab-II).