

# Report of Physics Department

(2020-21)



Mehr Chand Mahajan  
DAV College for Women Sector-  
36, Chandigarh

[www.mcmdavcwchd.in](http://www.mcmdavcwchd.in)

**Annual Report (Session 2020-21)**  
**Department of Physics**

1. **Name of the Department:** Physics

2. **Names of Programmes/Courses offered (UG, PG, M.Phil, Ph.D, Integrated Masters etc.)**

i. B.Sc. Non medical

ii. B.Sc. Vocational

iii. B.Sc. Physics Hons.

3. **List of Faculties during session 2020-21**

1. Mrs. Raman Chadha (HOD till May 2021)
2. Dr. Renu Bala (HOD)
3. Dr. Pallavi Gupta
4. Dr. Runjun Sarma
5. Dr. Swati
6. Dr. Ishita
7. Ms. Shreya
8. Ms. Meenakshi

4. **Achievements by Faculty:**

**Dr Renu Bala**

- 1) Completed One Week TEQIP-III Sponsored online Short Term Course on “**Recent Trends in Advanced Materials and Devices**” **21-25 September 2020** organized by NIT, Jalandhar
- 2) Completed One Week TEQIP-III Sponsored online Short Term Course on “**Current Trends in Condensed Matter Physics**” **25-29 September, 2020** organized by NIT, Jalandhar
- 3) Completed Refresher Course on “**Teachers Education: Policies, Procedure and Perceptions**” organized by HDRC, Panjab University, Chandigarh from 20 February 2021 to 5 March 2021

**Dr. Runjun Sarma**

1. Published research article “An Outlook on Nanocarriers to improve Drug Efficacy of Chloroquine against SARS-CoV-2” on International Journal of Nanoscience and Technology, volume 6, pages 897-900 (2020).

2. Selected as Editorial board member (section editor) of a) International Journal of Nanomaterials and Nanostructures b) International Journals of Nanobiotechnology
3. Attended 5 days "Faculty Development Program 'e-Content: Designing and Deployment Using G Suite' organized by Department of Computer Science and Applications, Mehr Chand Mahajan DAV College for Women, Sector 36 A, Chandigarh (July 20-July 24, 2020).

### **Dr. Pallavi Gupta**

1. Dr. Pallavi Gupta, Resource person delivered a lecture on awareness program on LED: an emerging energy efficient technology, in Govt. Senior Secondary School in Maloya, on 22<sup>nd</sup> March 2021, as an activity conducted by Renewable Energy committee, in collaboration with MCM Eco Club. As a part of 75 weeklong celebration of Bharat Ka Amrut Mahatsav.
2. Dr. Pallavi Gupta, Resource person delivered a lecture on LED- solution to sustainable energy lighting as a part of NSS 7 day and Night NSS Special Camp 92020-21) in Swachh Bharat Abhiyan and Jal Shakti Abhiyan program on 18<sup>th</sup> March, 2020.
3. Dr. Pallavi Gupta participated in the Be a Health Manager Workshop 2021 conducted by Mehr Chand Mahajan DAV College for Women, Chandigarh.
4. Dr. Pallavi Gupta participated in online National Seminar on "Recent Advances in Physics" under the aegis of Star College Scheme, DBT organized by BOSONS-The Physics Club, Department of Physics, Goswami Ganesh Dutta Sanatan Dharma College, Chandigarh on January 23, 2021.

### **Dr. Ishita Sharma**

1. Published research article on "Relevance of Skyrme forces in the decay dynamics of  $^{28}\text{Si}^*$  at stellar energies", Nucl. Phys. A 994, 121666 (2020).
2. Published a research article on, "Fragmentation analysis of  $^{105}\text{Ag}^*$  nucleus governed via complete and incomplete fusion channels at  $E_{c.m.}=89\text{ MeV}$ ", Mod. Phys. Lett. A 35, 2050084(14) 2020.
3. Published a research article on, "Fusion dynamics of compound nuclei with  $ACN=166-202$  investigated using different projectiles on  $^{154}\text{Sm}$  target", Braz. J. Phys. 50, 6470 (2020).

## 5. Events by Department of Physics in session 2020-21

### Celebration of National Science Day (6 March 2020)

Under the aegis of Chandigarh Renewable Energy and Science & Technology Promotion Society (CREST), Chandigarh Administration (UT), the Renewable Energy Committee of Mehr Chand Mahajan DAV College for Women celebrated National Women Day-2020 with great enthusiasm by organizing popular lectures and essay writing competition on the theme- 'Women in Science' on 06.03.2020. The lectures were delivered by Prof. Prince Sharma, Department of Microbiology, PU and Ms. Garima Saini, Assistant Professor, Department of Electronics and Computer Engineering, NITTTR, Chandigarh. Citing the examples of great women scientists like Missile Lady Tessy Thomas, Rocket Woman of India Ritu Karidhal, neuroscientist Shubha Tole, astronaut Kalpana Chawla, etc., both the experts motivated the students to take up science for the greater good of the society. Prof. Prince Sharma, while asserting that women only make 28% of research personnel in the world, enlightened the students about the special programmes and schemes pioneered by Government of India to promote women scientists like Mobility Scheme, WOS-A, WOS-B, WOS-C, etc. Asserting that the world needs science and science needs women, Ms. Garima Saini also shed light on various initiatives and special awards initiated by the government that focus on helping women utilize their scientific knowledge and temperament for the society's benefit. Speaking on the occasion, more than 100 students participated enthusiastically in essay writing competition and made vivid depictions of how women has contributed in today's technology.

### एमसीएम में पॉपुलर साइंस पर व्याख्यान

चंडीगढ़, 11 मार्च (रफेश): विज्ञान के क्षेत्र में महिलाओं के महत्वपूर्ण योगदान को याद करने और मानव जाति के विकास में विज्ञान के योगदान से छात्रों को जागरूक एवं प्रेरित करने के उद्देश्य से मेहर चंद महाजन डीएवी कॉलेज फॉर वूमैन ने वूमैन इन साइंस विषय पर पॉपुलर साइंस थीम पर व्याख्यान का आयोजन किया।

चंडीगढ़ रिन्यूएबल एनर्जी एंड साइंस एंड टेक्नोलॉजी प्रमोशन सोसाइटी, चंडीगढ़ प्रशासन द्वारा प्रायोजित इस व्याख्यान में पंजाब यूनिवर्सिटी के माइक्रोबायोलॉजी विभाग से प्रो. प्रिंस शर्मा तथा इलेक्ट्रॉनिक्स और

एनआईटीटीआर, चंडीगढ़ के कंप्यूटर इंजीनियरिंग विभाग की सहायक प्रो. गरिमा सेनी वरिष्ठ विशेषज्ञ उपस्थित थे। मिमाइल लेडी-टेसी थॉमस, रफिक्ट वूमैन ऑफ इंडिया पितु करिंदल, न्यूरोसाइंटिस्ट शुभा टोल, अंतरिक्ष यात्री कल्पना चावला जैसे महान महिला वैज्ञानिकों के उदाहरणों का हवाला देते हुए दोनों विशेषज्ञों ने छात्रों को समाज के भलाई के लिए विज्ञान विषय को महत्ता पर प्रकाश डाला। प्रो. प्रिंस शर्मा ने कहा कि विश्व को केवल 28 प्रतिशत महिलाएं दुनिया ही अनुसंधान करती हैं।

उन्होंने छात्रों से भारत सरकार द्वारा संचालित विशेष कार्यक्रमों और

योजनाओं इत्यादि की जानकारी भी साझा की। डा. गरिमा सेनी ने सरकार द्वारा शुरू की गई विभिन्न पहलों और विशेष पुरस्कारों पर भी प्रकाश डाला जिसका प्रयोग करके महिला वैज्ञानिक सामाजिक उत्थान में मदद कर सकती हैं। कॉलेज की प्रिंसिपल डा. निता भार्गव ने महिलाओं की समाज में मजबूत स्तंभ के रूप में भूमिका और राष्ट्रीय विकास में उनके योगदान पर जोर देते हुए कहा कि एमसीएम में, लड़कियों को सशक्त बनाने के लिए लगातार प्रयास किए जा रहे हैं तबकि उन्हें अपनी पूरी क्षमता का एहसास हो और सामाजिक उत्थान में भी मदद मिले।



### 'वूमन इन साइंस' पर व्याख्यान

चंडीगढ़। सेक्टर-36 स्थित एमसीएम डीएवी कॉलेज फॉर वूमैन ने 'वूमन इन साइंस' विषय पर व्याख्यान का आयोजन किया गया। इसका उद्देश्य विज्ञान के क्षेत्र में महिलाओं के योगदान के बारे में छात्रों को जागरूक बनाना। व्याख्यान में पंजाब यूनिवर्सिटी के माइक्रोबायोलॉजी विभाग से प्रो. प्रिंस शर्मा और इलेक्ट्रॉनिक्स एंड एनआईटीटीआर, चंडीगढ़ के कंप्यूटर इंजीनियरिंग विभाग की सहायक प्रोफेसर गरिमा सेनी वरिष्ठ विशेषज्ञ उपस्थित थे। दोनों विशेषज्ञों ने समाज को भलाई के लिए विज्ञान विषय के महत्त्व और इससे भारतीय महिलाओं के योगदान पर प्रकाश डाला। कॉलेज प्रिंसिपल डॉ. निता भार्गव ने महिलाओं की समाज में मजबूत स्तंभ के रूप में भूमिका और राष्ट्रीय विकास में उनके योगदान के बारे में बताया।

## एमसीएम में महिला वैज्ञानिकों के योगदान पर चर्चा

चंडीगढ़, 11 मार्च (ट्रिब्यून)

मेहर चंद महाजन डीएवी कॉलेज फॉर वीमेन ने 'वूमन इन साइंस' विषय पर व्याख्यान का आयोजन किया। चंडीगढ़ रिन्यूएबल एनर्जी एंड साइंस एंड टेक्नोलॉजी प्रमोशन सोसायटी, चंडीगढ़ प्रशासन द्वारा प्रायोजित इस व्याख्यान में पंजाब यूनिवर्सिटी के माइक्रोबायोलॉजी विभाग से प्रो. प्रिंस शर्मा, इलेक्ट्रॉनिक्स और एनआई टीटीटीआर, चंडीगढ़ के कंप्यूटर इंजीनियरिंग विभाग की सहायक प्रो. गरिमा सैनी बतौर विशेषज्ञ उपस्थित थे। मिसाइल लेडी 'टेसी थॉमस', 'रॉकेट वूमन ऑफ इंडिया' रितु करिंदल, न्यूरोसाइंटिस्ट 'शुभा टोल', अंतरिक्ष यात्री कल्पना चावला जैसी महान महिला वैज्ञानिकों के उदाहरण दिये गये।



प्रिंसिपल डॉ निशा भार्गव विशेषज्ञ डॉ गरिमा सैनी को स्मृति चिन्ह बेंट करते हुए। (छाया: गुरिन्दर सिंह)

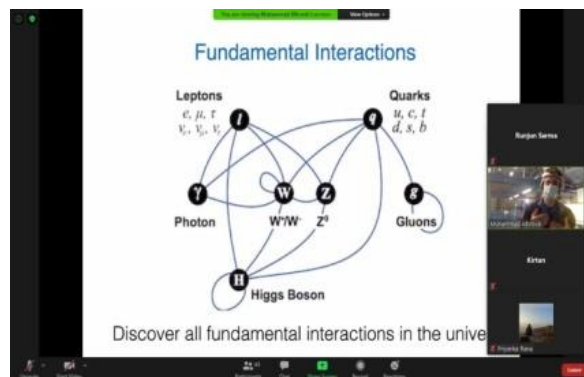
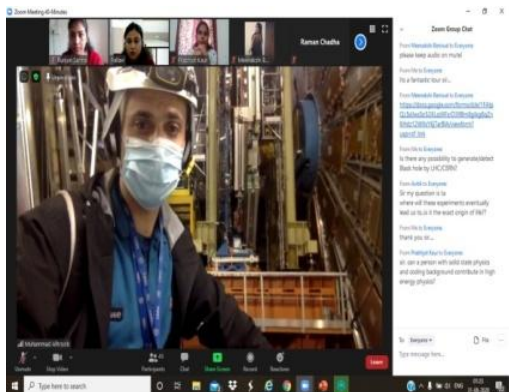
## विज्ञान के क्षेत्र में महिलाओं के महत्वपूर्ण योगदान बारे की चर्चा

चंडीगढ़, 11 मार्च (पटना) : शुभा टोल, अंतरिक्ष यात्री कल्पना चावला जैसे महान महिला वैज्ञानिकों के उदाहरणों का हवाला देते हुए दोनों विशेषज्ञों ने छात्राओं को समाज के योगदान से छात्राओं को जागरूक एवं प्रेरित करने के उद्देश्य से मेहर चंद महाजन डीएवी कॉलेज फॉर वीमेन में पॉपुलर साइंस थोम पर सेमिनार का आयोजन किया गया। पंजाब यूनिवर्सिटी से प्रो प्रिंस शर्मा तथा सहायक प्रो गरिमा सैनी बतौर विशेषज्ञ उपस्थित थे। मिसाइल लेडी टेसीथॉमस, रॉकेट वूमन ऑफ इंडिया रितु करिंदल, न्यूरोसाइंटिस्ट

भलाई के लिए विज्ञान विषय की महत्वा पर प्रकाश डाला। प्रो प्रिंस शर्मा ने कहा कि विश्व की केवल 28 प्रतिशत महिलाएं दुनिया ही अनुसंधान कर्मी हैं। डॉ गरिमा सैनी ने सरकार द्वारा शुरू की गई विभिन्न पहलों और विशेष पुरस्कारों पर भी प्रकाश डाला जिसका प्रयोग करके महिला वैज्ञानिक सामाजिक उत्थान में मदद कर सकती हैं।

### Atlas virtual visit (31 August 2020)

Department of Physics organized a Virtual Lab Visit to ATLAS experiment at CERN, Geneva , Switzerland on August 31, 2020 on Virtual platform ZOOM. ATLAS (A Toroidal Large Hadron Collider Apparatus) is the largest general purpose detector experiment. This experiment basically provides unique experiences in understanding the secrets of matter and exploring the mysteries of the universe. Dr Muhammad Alhroob, guide of the visit very well explained the basic theories of particle physics like Dark matter, Standard model, Muon spectrometer, Liquid Argon Calorimeter etc. He virtually showed the laboratories, control centers and underground tunnels of LHC that are home to many experiments. This visit was special as even without being physically present at CERN, participants were able to approach the detector closely and from different angles. Our guide stepped into the most hidden corners of CMS and explained the enormity, complexity and incredible performance of the detector in the language of the visitors. These kinds of virtual visits act as a window into the world of scientific progress and discovery in particle physics research, by offering students, teachers and the wider public from all over the world with a unique opportunity to take a guided walk-and-talk live tour with a researcher through the ATLAS detector, and to learn how science and technology work together for advancing our understanding of the universe. All the participants enjoyed this visit enthusiastically and got opportunity to widen their horizon of knowledge regarding particle accelerators.



### Virtual Eureka Physics Fest 2020 (14 October, 2020)

This year owing to COVID-19 situation, Department of Physics organized its annual Eureka Fest as “Virtual Eureka Physics 2020” on 14<sup>th</sup> October, 2020 where humongous number of students (approximately 300) from science streams of the college participated enthusiastically. The various events such as Quiz, Collage presentation, Power Point Presentation, Click a picture and write a story, Plantoons, Caption the picture captured through your lens, and article writing based on themes related to Plant Health were conducted. All entries were amazing and worth recognition. They portrayed beautiful messages on Plant Environmental Physical interaction through their innovative activities. Through this event, students got an opportunity to know the importance of protection of plant health and its relation with physics.

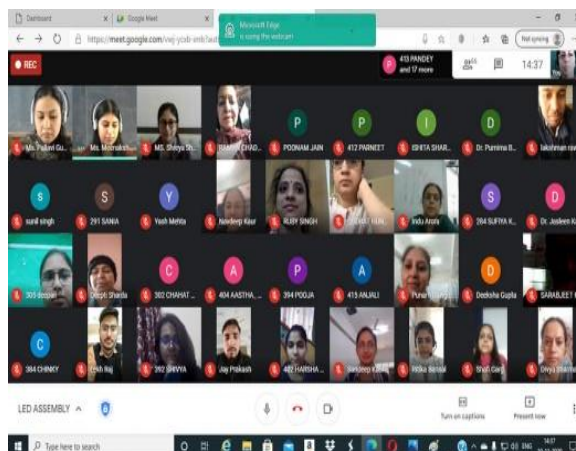
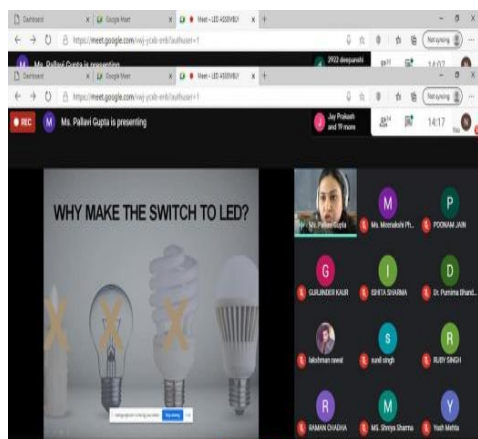


### A two day workshop on LEDs: Revolutionizing Illumination Technology (10-11 November 2020)

In the history of Lighting devices, invention of LED was a turning point. LEDs stands for Light Emitting Diode. LED is a highly energy efficient lighting technology, and has the potential to fundamentally change the future of lighting In accent lighting and directional marking

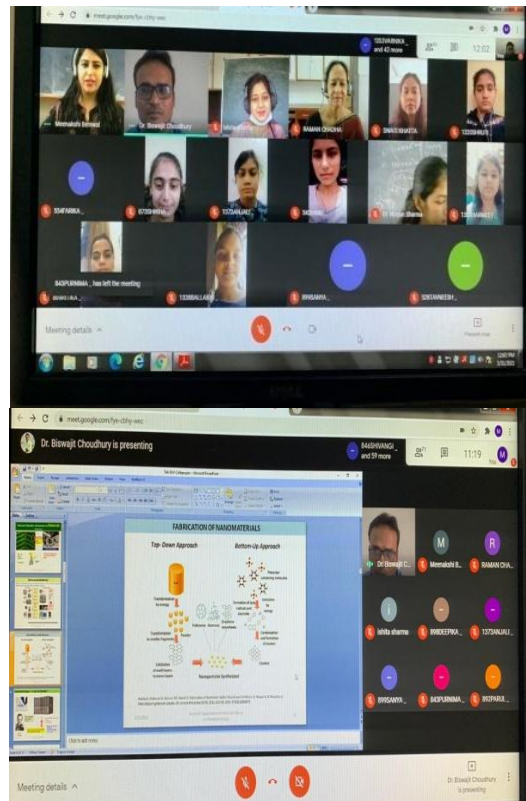
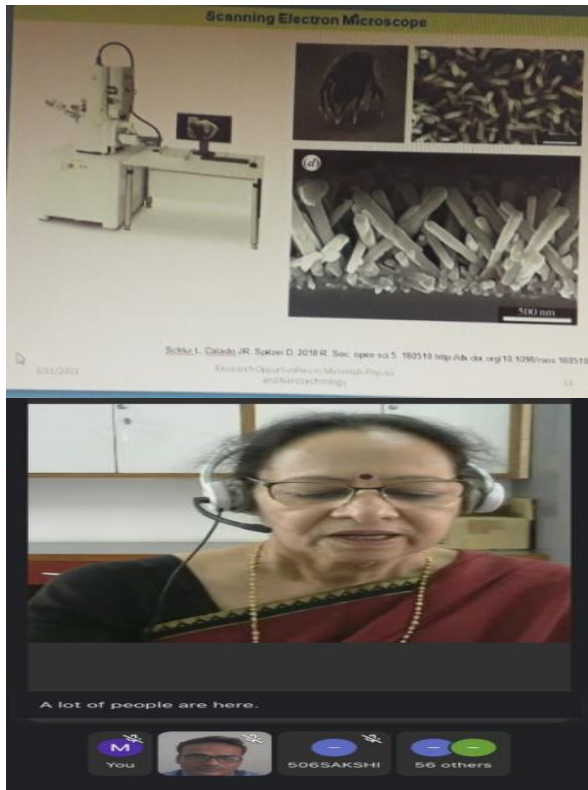


applications, high- brightness LEDs have emerged within the last six years. With the increasing demand for green earth, LED will play significant role in environmental strain on energy resources. This session was comprised of two sections including webinar on Light Emitting Diode: Revolutionizing Illumination Technology and hands on training on assembling LED parts with duration of 2 hours. In the first session, a webinar was organized by the Dept of Physics and Renewable Energy Committee. Mrs. Poonam Jain (Convener of Renewable Energy committee) formally welcomed all the participants. She highlighted the emergence of LED Technology in today's world. Resource person, Dr Pallavi Gupta briefed how LEDs have created a revolution in illumination technology on 10<sup>th</sup> November, 2020. In the presentation it was emphasized that LED lights are much more eco-friendly, and are up to 80% more efficient than fluorescent and incandescent lights". In second session, a Hand on training workshop was organized where participants successfully assembled LED bulbs. The workshop aimed at teaching and Non teaching College staff about assembling 9 W and 12 W LED. Total 43 staff members participated in this workshop on 11<sup>th</sup> November, 2020. Participants successfully made around 50 LED bulbs and tested them successfully at this workshop. Principal Dr. Nisha Bhargava encouraged the participants for pursuing such ventures in future.



## Webinar on “Research Opportunities in Material Physics and Nanotechnology” (31 March 2021)

Dr. Biswajit Choudhury, Assistant Professor-II of Institute of Advanced Study in Science and Technology delivered a talk on Research opportunities in material physics and nanotechnology on 31/03/2021. In his talk, he showed the results of band gap enlargement providing a higher energy band gap value in the confined materials as compared to the band gap in bulk material. This change in band gap results in drastic variations in the physical, optical, electrical, magnetic properties of nanoparticles. He has also given a flavor of the light-matter interaction at the nanoscale confinement region between a plasmonic metal and a semiconductor, particularly in gold, silver nanoparticles. The speaker also motivated young students to carry their research in material sciences by acknowledging the future plans of IASST. He also shared that, presently, the researchers in IASST are finding photoelectrochemical ways for water splitting as an alternative method for future fuel resources. Total 67 students of B.Sc. 3<sup>rd</sup> year and B.Sc Hons. and 6 staff members participated in the webinar. Students got opportunity to widen their horizon regarding nanoscience and got motivated for future research in this area.





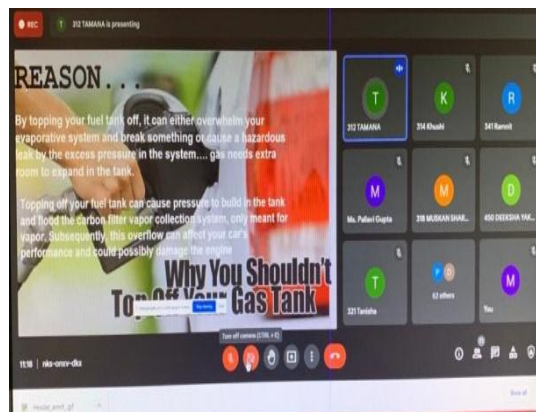
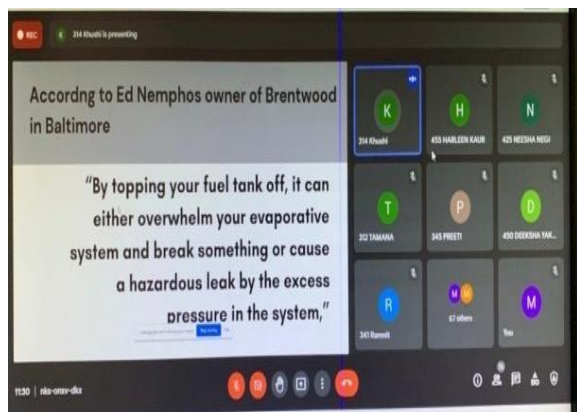
## Preventive Measures on saving energy power consumption in Day to Day Lives (19 April 2021)

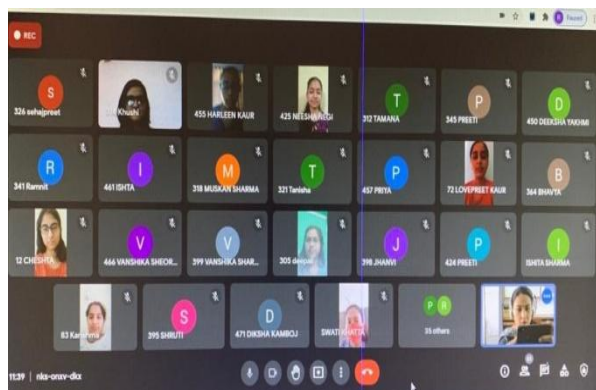
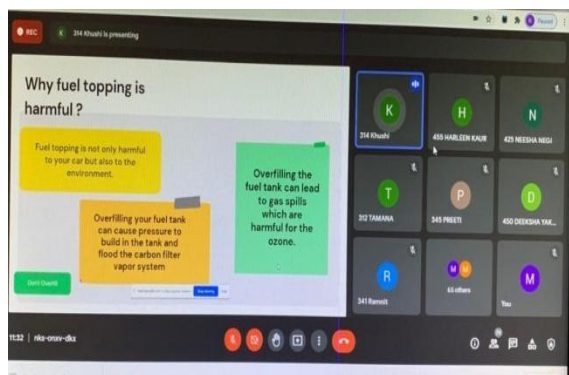
An Essay writing and power point presentation competition was organized for B.Sc II year Non Medical, Vocational and Hons students on 19/04/2021 where they mentioned various other ways apart from turning off unnecessary appliances. Students pointed that using natural light, opting taking light method, taking shorter showers, unplugging unused appliances, switching to laptops than desktop computers, running full loaded machines, washing clothes with cold water, using towel instead of dryers, maintaining optimum temperatures of refrigerators, using microwave instead of oven are some of the measures that one can follow in day to day lives to minimize the use of electricity. 54 students participated in this competition and learned many different measures that can help in saving energy consumption.

## An interactive talk based on the theme “Don’t overfill fuel tank, it is harmful to the environment and to the car engine” (19 June 2021)

To mark the celebration of “BHARAT KA AMRUT MAHOTSAV, 75<sup>th</sup> Anniversary of India’s Independence, the Department of Physics in collaboration with Renewable Energy committee and MCM ECO CLUB organized an interactive session on June 19, 2021. In this session students discussed detrimental effects of overfilling the fuel tanks. Ms. Khushi and Ms. Tamanna, students of B.Sc I Non-Medical presented their views through power-point presentation and give the friendly reminder to think twice before topping off your gas tank as it could avoid hefty car repairs, avoid harming the environment and keep more money in your pocket.

**Evidence of Success:** Around 72 students of B.Sc. I (NM) and 4 teaching staff members participated in this session. Through this session, students were encouraged to stop overfilling the idea of fuel tanks.





**Students Achievements:**

**University Merit Holders**

<b>University Roll Number</b>	<b>Name of the student</b>	<b>Course</b>	<b>University Position</b>
18060968	CHEटना	B.Sc Hons. Physics May,2021	1 <sup>st</sup>
18060971	DEBORAH MATHIAS	B.Sc Hons. Physics May,2021	2 <sup>nd</sup>
18061084	RUDHRAKSHI	B.Sc Hons. Physics May,2021	3 <sup>rd</sup>
18061074	RASHMI	B.Sc Hons. Physics May,2021	5 <sup>th</sup>
18061093	SANYA PAHWA	B.Sc Hons. Physics May,2021	7 <sup>th</sup>
20058417	ISHITA GAKHAR	B.Sc NM Semester 1	10 <sup>th</sup>
20058510	RIA TALWAR	B.Sc NM Semester 1	10 <sup>th</sup>
20058542	SHRUTI	B.Sc NM Semester 1	10 <sup>th</sup>
20058375	BHAVIKA MEHTA	B.Sc NM Semester 1	10 <sup>th</sup>
20058510	RIA TALWAR	B.Sc NM Semester 2	10 <sup>th</sup>

**Eureka Winners:**

<b><u>QUIZZ</u></b>			
<b><u>THEME: BIOELECTRICITY</u></b>			
<b>NAME</b>	<b>CLASS</b>	<b>ROLL NO.</b>	<b>PRIZE</b>

PRERNA GULYANI	B.Sc. I Non-Medical	370	<b>FIRST</b>
CHESHTA	B.Sc. I Non-Medical	12	<b>SECOND</b>
MANYA	B.Sc. I Vocational	56	<b>THIRD</b>
RIA	B.Sc. I Non-Medical	362	<b>THIRD</b>
HARLEEN	B.Sc. I Vocational	68	<b>THIRD</b>
<b><u>COLLAGE PRESENTATION</u></b> <b><u>THEME: PLANT HEALTH</u></b>			
TRANAM	B.Sc. I Non-Medical	383	<b>FIRST</b>
FARHAT KHAN	B.Sc. I Non-Medical	432	<b>SECOND</b>
GIRISHA	B.Sc. I Non-Medical	310	<b>THIRD</b>
AVNEET KAUR	B.Sc. I Non-Medical	313	<b>CONSOLATIO N</b>
SHREYA	B.Sc. I Non-Medical	447	<b>CONSOLATIO N</b>
JHANVI	B.Sc. I Non-Medical	398	<b>CONSOLATIO N</b>
<b><u>ARTICLE PRESENTATION</u></b> <b><u>THEME: TECHNOLOGIES OF PLANT HEALTH</u></b>			
RAVNEET	B.Sc. II Non-Medical	1371	<b>FIRST</b>
ISHA	B.Sc. II Non-Medical	1359	<b>SECOND</b>
GARIMA	B.Sc. II Non-Medical	1379	<b>THIRD</b>
PALAK KINDRA	B.Sc. II Non-Medical	1346	<b>CONSOLATIO N</b>
VARNIKA MALIK	B.Sc. II Non-Medical	1353	<b>CONSOLATIO N</b>

NATASHA	B.Sc. II Non-Medical	1340	<b>CONSOLATION</b>
<b><u>CLICK A PICTURE AND WRITE A STORY</u></b> <b><u>THEME: TECHNOLOGIES OF PLANT HEALTH</u></b>			
BHAWNA	B.Sc. II Non-Medical	1383	<b>FIRST</b>
ANANYA	B.Sc. II Non-Medical	1394	<b>SECOND</b>
VIBHU BHARTI	B.Sc. II Non-Medical	1402	<b>THIRD</b>
DIKSHA SHARMA	B.Sc. II Non-Medical	1306	<b>CONSOLATION</b>
ISHITA RANA	B.Sc. II Non-Medical	1424	<b>CONSOLATION</b>
ARCHITA MEHTA	B.Sc. II Non-Medical	1390	<b>CONSOLATION</b>
<b><u>POWER POINT PRESENTATION</u></b> <b><u>THEME: TECHNOLOGIES OF PLANT HEALTH</u></b>			
ITI SHARMA	B.Sc. II Vocational	1007	<b>FIRST</b>
RITIKA RAJ	B.Sc. II Vocational	1012	<b>SECOND</b>
MUSKAN	B.Sc. II Vocational	1008	<b>THIRD</b>
YUVIKA	B.Sc. II Vocational	1004	<b>CONSOLATION</b>
<b><u>PLANTOONS</u></b> <b><u>THEME: PLANT-ENVIRONMENT PHYSICAL INTERACTION</u></b>			
NITIKA GANDHI	B.Sc. III Vocational	533	<b>FIRST</b>
PREETIKA	B.Sc. III Vocational	544	<b>FIRST</b>
GURLEEN KAUR	B.Sc. III Vocational	551	<b>SECOND</b>

JASMINE	B.Sc. III Vocational	505	<b>SECOND</b>
RADHIKA	B.Sc. III Vocational	540	<b>THIRD</b>
FARIKA	B.Sc. III Vocational	554	<b>THIRD</b>
<b><u>CAPTION THE PICTURE CAPTURED THROUGH YOUR LENS</u></b> <b><u>THEME: PLANT-ENVIRONMENT PHYSICAL INTERACTION</u></b>			
DARSHITA	B.Sc. III Non- Medical	819	<b>FIRST</b>
DEBORAH	B.Sc. III Non- Medical	821	<b>SECOND</b>
JASPREET	B.Sc. III Non- Medical	882	<b>THIRD</b>
JASLEEN	B.Sc. III Non- Medical	838	<b>CONSOLATIO N</b>
SHIVANGI SHARMA	B.Sc. III Non- Medical	846	<b>CONSOLATIO N</b>
PRAGYA KAUSHIK	B.Sc. III Non- Medical	890	<b>CONSOLATIO N</b>