

**SALESIAN  
COLLEGE**  
SILIGURI & SONADA

SCIENCE DEPARTMENTS OF SALESIAN COLLEGE

June 2021

A Science Deanery half-yearly Magazine

## 1 TRENDS IN SCIENCE AND TECHNOLOGY - TIST 2021

A one day National Conference on “Trends in Science and Technology 2021” was organised by the Science Departments of Salesian College, Siliguri campus, on 28<sup>th</sup> February 2021.

## 2 DEPARTMENTAL ACTIVITY: STUDENT PRESENTATION

In order to inculcate ethics, etiquette, communication skills and inter-personality development among students the Department of Physics has been conducting weekly (Saturdays) in-house seminar.

## 3 INTERNET OF THINGS : THE DAWN OF A NEW ERA

Over the past few decades, the internet has made astounding progress and increased its outreach and compatibility with devices. Not so long ago, internet used to be a PC luxury, then came the era of phones with mail, and then smart phones.

## Trends in Science and Technology - TIST 2021



A one day National Conference on “Trends in Science and Technology 2021” was organised by the Science Departments of Salesian College, Siliguri campus, on 28<sup>th</sup> February 2021. It was held in blended mode where dignitaries and some participants attended online and organisers and some participants attended offline. It began with the lighting of the lamp by the Fr. (Dr.) George Thadathil, Rector and Principal, Salesian College, Dr. S C Das, Rtd. Professor of Physics, Mr. Dhirodatta Subba Dean of Science, Mr. Subhajit Paul, Head, Department of Mathematics and Mr. Prajwal Chettri, Head, Department of Physics. Dr. S C Das conducted welcoming ceremony and outlined the background of the Conference and mentioned that it aimed at providing a platform for exchanging views on latest trends in the realm of Science and Technology, knowledge sharing by domain experts and research scholars, and also to establish connections with institutions of National importance with the people of this region. He laid emphasis on the fact that we were observing the National Science Day.



Dr. S C Das

Father (Dr.) George Thadathil, Principal of the College, continued with welcoming all and then moved to introduction of the program to all who were present and threw coherent light on the relevance of organising such conference in the context of the current scenario of higher education in India, despite the pandemic situation throughout the world. He emphasised the importance of technology in higher education and the need to keep up with times, especially in regard to the major changes being brought in with reference to the new National Education Policy. After this, the keynote speaker – Dr.



Father (Dr.) George Thadathil

Arnab Chakraborty, Associate Professor, Applied Statistics Unit, Indian Statistical Institute, Kolkata, was introduced by Mr. Subhajit Paul, Head, Department of Mathematics, Siliguri Campus.



Dr. Arnab Chakraborty

Dr. Arnab Chakraborty delivered his “National Science Day” talk on this year's theme "Future of Science Technology and Innovation: Impacts on Education, Skills, and Work". Starting with four fundamental observations:

- (a) the country is technologically impoverished
- (b) our country was great – Aryabhatta, Brahmagupta, Madhavacharya and the invention of *Calculus*
- (c) our country is great – Nobel prize winning scientists like Satyen Bose, Jagdish Chandra Bose, Ramanujan, C V Raman and others
- (d) booming of higher education institutions

Dr. Chakraborty went on to present his own take on the state of things. First thing that he was critical about was the mercenary attitude of his countrymen in matters related to Science and Technology – that the people involved, in general, across all institutions, were doing work for financial benefits, for publishing in reputed journals and because government has that project funded, and not for the love of it. He went on to say that our people were good at utilising apps, technologies developed by others but poor in creating original products, be they software or others. He also mentioned inadequacy of infrastructure support in institutions to support research. He further mentioned people's attitude of running after high end advanced research areas in science and technology whereas research and development in simple areas could have made more sense due to its applicability in people's daily lives.

He concluded with the opinion that people need to be more innovative and more practical minded and ready to put in more effort in originality and not let others exploit our weaknesses.

There was interactive session after the keynote talk. Fr. George Thadathil, our Principal, expressed his agreement on the views shared by the speaker. He, however, mentioned that all was not lost by giving the example of own institution where we developed our own Enterprise Resource Planning software, after having experimented with a Software company for such system for three years. This was followed by a short intermission before the next session.

The first technical session was chaired by Mr. Bicky Sharma, Head, Department of Economics. He introduced the plenary speaker Dr. Mona Chettri, post-doctoral research fellow, Australia-India Institute, University of Western Australia. Dr. Mona's talk was titled “*Gender, migration and the precarious labour in the Eastern Himalayan region*”. She started by acknowledging that she was the only speaker from the Social Science and she thanked Fr. Principal and the organisers for extending the invitation to her. She mentioned that she was from Sikkim and that her research studies are on Sikkim and Darjeeling Hills.

Her focus of the talk was on young, mobile women who are working in the informal sector - primarily in manufacturing and servicing sector, and situated in Sikkim. Key points of her talks were:

- Emergence of new labouring class as a result of globalisation and liberalisation
- Intersections of gendered constructions of labour and liberalisation
- The increasing precarity and instability of employment in the Eastern Himalaya



**Gender, Migration and Precarious Labour in the eastern Himalaya**

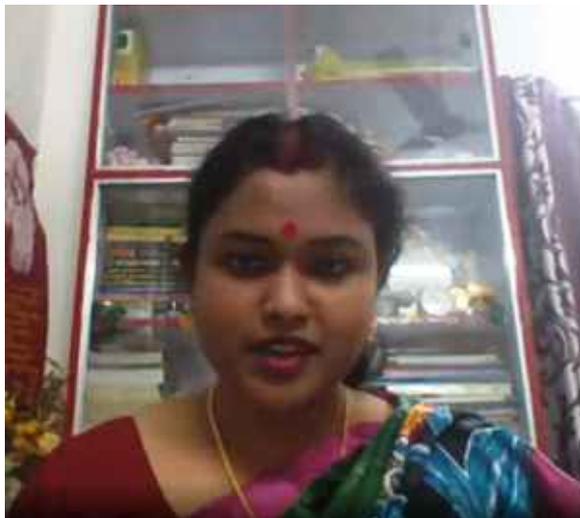
MONA CHETTRI, PHD  
POST-DOCTORAL RESEARCH FELLOW  
AUSTRALIA-INDIA INSTITUTE  
UNIVERSITY OF WESTERN AUSTRALIA



Dr. Mona Chettri

Majority of these women come from educationally or economically disadvantaged families. They are working in factories, shops, malls, restaurants and cafes – low paying jobs and having no safety nets because of the informal employment sector. This sector is thriving due to government incentives, and globalisation and changing consumption patterns of people and business owners trying to increase sales. This is causing significant migration of female population from rural to urban areas. Most of them are first generation employees in this sector. They are at increased risk of exploitation. So, on the one hand they are getting employment; on the other hand, they are being exploited too. She left with the question of finding and developing safety nets for this group of people. Her talk ended with a short question and answer session.

The next presenter was Ms. Manasi Debnath, faculty, Department of Geography, Salesian College. Her presentation was on “*Reconstruction of Palaeoclimate with reference to Cryosphere dynamics in the Changme Khangpu Valley, Sikkim*”.



Ms. Manasi Debnath

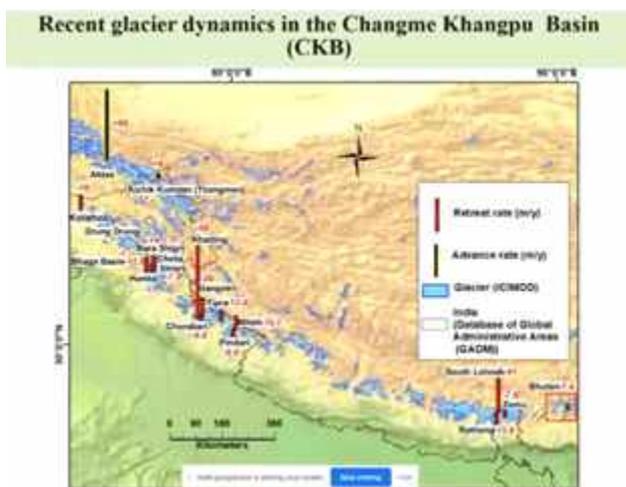
**Reconstruction of Palaeoclimate with Reference to Cryosphere Dynamics in the Changme Khangpu Valley, Sikkim Himalaya**



**Manasi Debnath\***

Assistant Professor  
Department of Geography,  
Salesian College (Siliguri)  
University of North Bengal

She started by explaining paleoclimate as climatology prior to the instrumental records of temperature, precipitation and other weather phenomena. She mentioned that such studies have been done for other parts of the Himalayas like Garhwal, Karakoram, Nepal and south-east China. It is important to know the information for future modelling as some civilisations have been lost in the past due to abrupt climatic changes. This leads us to the glaciers in the Himalayas. In Sikkim, glaciers



are retreating at fast rates. Her study was about reconstruction of a model of past glacier landform within the Changme-Khangpu valley and identification and assessment of paleoclimate changes within the Quaternary period. She led us through the analysis of her study where she explained the chronological events that took place in the past in the formation and movement of this glacier and corroborated the findings with studies done elsewhere. She also explained that her data came from Sentinel 2A, LANDSAT 8-OLI, SRTM-DEM and field survey. She also explained the methodology used

in the investigation. Due to paucity of time, question-answer session was skipped and program moved to the next presentation.

The next speaker was Dr. Protip Basu from Siliguri College. The topic was “*Amalgamation of Sequence Bioinformatics and structural Bioinformatics – teaching Bioinformatics to lay persons and non-biologists*”. He spoke on how to bring about changes in methods of teaching that would help students reach the right place quickly. He took, for example, the ncbi site which is the go-to place for all students of biology. However, getting to the right place is not easy.



Dr. Protip Basu

He mentioned that due to the pandemic situation, our dependence on technology is increasing and we are having to continue education in the new normal. Key points of his talk were:

- Intelligent use of search engines. For example, in case of NCBI portal, students can narrow down the search by choosing the right database, followed by using key word combinations in proper manner, so the search result list is narrow and specific. Moreover, the portal provides some colour coding in the result pages and the balloon/context sensitive help feature is of great help. Similarly, searching google also can be made smarter by making use of the advanced features and the choice of right combinations of key words.
- Teachers to make the presentation by making use of animated graphics, colour schemes with explanations.

- Search results to be stored locally and BLAST (Basic Local Alignment Search Tool) to be applied.
- His research on structures of protein (PDB – Protein Data Bank portal), crystal structure of Human Argonaut (4OLA).

This was followed by lunch break.

The second technical session was chaired by Dr. Prajwal Chettri, Head, Department of Physics. He introduced the plenary speaker Prof. Somendra Mohan Bhattacharjee, Head of Department of Physics, Ashoka University. His talk was titled “*Emergent phenomena: more is different*”.



Prof. Somendra M Bhattacharjee

Prof. Bhattacharjee started from Paul Adrian Maurice Dirac's 1929 controversial statement: "quantum mechanics is now almost complete ... [and] the underlying physical laws necessary for the mathematical theory of a large part of physics and the whole of chemistry are thus completely known", although he admitted that "the difficulty is only that the exact application of these laws leads to equations much too complicated to be soluble."

This sweeping statement was due to the success of Quantum Mechanics which overpowered everything in those days, and influenced the works of Physicists for decades. They forgot how science started – through observations and measurements. The laws of motion and gravitation discovered much earlier by Kepler and Newton could explain planetary motions well, and they had nothing to do with Quantum Mechanics. In truth, what works at the micro scale, in the constituents, changes / emerges into something quite different at macro scale. He gave a number of illustrations to show emergent behaviour – traffic jam with cars on the road, matter changing from solid to liquid to gas, probability distribution of gas molecules in terms of speed/ energy [Maxwell-Boltzmann distribution] giving rise to Boyle's law, Charles' Law. So, reasoning in the same way, Newton's law is really an emergent phenomena of quantum mechanics laws. In the same way collections of cars each obeying Newton's laws of motion, ends up behaving in a different way at traffic jams – involving probabilistic and statistical factors. This was what was termed “more is different” by a Nobel laureate Philip W. Anderson of Princeton University.

This sweeping statement was due to the success of Quantum Mechanics which overpowered everything in those days, and influenced the works of Physicists for decades. They forgot



Mr. Bikramjit Chandra

The next presenter was Mr. Bikramjit Chandra, faculty, Department of Physics, Salesian College. His presentation was titled “*Detection of Phosphine in the Venusian atmosphere – A Discussion*”.

There was a paper published by Jane S. Greaves and associates in September 2020 titled “*Phosphine gas in the cloud decks of Venus*”. This was a paper on Radio and Planetary Astronomy. It created quite a bit of excitement among the scientists who are hopeful of discovering signs of life in other planets. It claimed that they used two radio telescopes JCMT and ALMA and detected phosphine, a bio signature gas, at 56 km height from the surface of Venus. Their conclusion was based on 5 year data from the telescopes. Existence of life forms was a conjecture from the 70's and some papers were written in 2017 and 2020 prior to the current paper, where it was

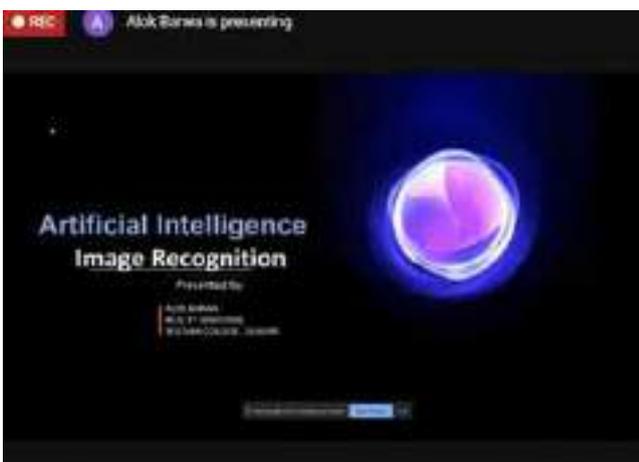
suggested that between 40 – 70 km from the surface, conditions were favourable.

Comparing the absorption signature of phosphine with the sample data analysis, they found a similarity and concluded that this could be phosphine in Venus' atmosphere. And they tried to explain how the gas could have come into existence on the basis of 75 different chemical reactions that are possible; but they found that the rate of destruction of phosphine was much higher than the rate of formation.

Critics of this theory asked the question: “how do you know you are not detecting sulphur dioxide?”

Greaves and associates defended their claim.

However, in April this year, Andrew P. Linkowski and associates published a paper “*Claimed detection of PH<sub>3</sub> is consistent with SO<sub>2</sub>*”. They did the modelling of both phosphine and sulphur dioxide in the Venusian atmosphere, and found that the signature of SO<sub>2</sub> is twice as strong as PH<sub>3</sub>, and that for them to be detected, they should exist at 80 km above the surface and not 56 km. This study finally put to rest the conjecture of phosphine's existence in Venusian atmosphere.



Alok Barua's presentation

The next presenter was Mr. Alok Barua, student, BCA third semester. His topic was “*Artificial Intelligence and Image Recognition*”.

He spoke on the Combination Neural Network methodology. He started by mentioning the image recognition *CAPTCHA* that we encounter while trying to login or access a web resource.

Going to the very fundamentals of image recognition, he explained how the gradient descent method works and algorithmically a computer recognises a figure. This algorithm translates matrix data to a linear array and does the work.



Mr. Sandeep Sengupta

The last technical session chair person was Mr. Subhaji Bose, Deputy Head, Department of Computer Science and Applications. He introduced Mr. Sandeep Sengupta, Managing Director, Indian School of Ethical Hacking (ISOEH), Kolkata.

Mr. Sengupta built on the National Science Day theme. He showed the following slide and asked students to understand how a future home / office is going to look like. This represents the devices/ appliances inter-connected in the home network. This is what we call as Internet of Things (IoT).



Then he mentioned that youngsters need to be ready for jobs that do not exist today. He spoke about Industry 4.0 which is presently going on. Then he went on to explain what the current job trends are and which industries youngsters are more likely to get jobs. One of them being in the area of Cyber security. He further mentioned that the government needs 500,000 trained professionals; but as of today there are only 70,000. He mentioned how important it was for new generation of students to choose a career in such field. And the salary is very high for candidates who can prove their skills! To help students, Salesian College has already partnered with ISOEH for industrial training of students. He encouraged students to make the best of the opportunities available.

Next presenter was Mr. Amit Singh, student of BCA, third semester. His topic being “*Cyber Security Awareness*” he explained why awareness was important. Some of the concepts he mentioned were:



- Technology cannot protect us from everything
- Hackers go where security is weakest
- Risk reduction
- Being aware and alert

How to protect:

- our personal data such as Credit/ debit card information
- Medical data
- Computer resources

We could achieve these by:

- Keeping operating system, browsers, network system up-to-date with latest fixes/ patches
- Using proper anti-malware software
- Using proper password management tools
- Using two factor authentication
- recognising scams
- device safety protocols
- internet safety protocols



Mr. Amit Singh

Final presenter was Mr. Rahul Chettri, student, BCA third semester. His topic was “*Artificial Intelligence*”. Starting from the use of drones in agriculture for spraying water or pesticides, AI is being used by companies for hiring staff, financial services, medical science, advertising and so on, Rahul took us through some of the key challenges and opportunities, gradually to the next level of future possibilities.



Rahul Chettri

He took us to the conclusion:

“Artificial Intelligence is the product of both science and myth. The idea that machines could think and perform tasks just as humans do is thousands of years old. The cognitive truths expressed in AI and Machine Learning systems are not new either. It may be better to view these technologies as the implementation of powerful and long-established cognitive principles through engineering.”

Having come to the end of technical sessions, we had our Vice Principal, Fr. Aju Kurian, with his final words of congratulations to all the speakers and organisers, and encouragement to the faculty and students of Science Departments to carry on with the good work.



Fr. Aju Kurian

Keeping in mind the pandemic situation that could stretch for another year, he encouraged faculty to find innovative ways to make teaching experience rich.



Then led by Mr. Dhirodatta Subba, Dean of Science, followed release of two publications

- IT Policy handbook of the institution
- DigiTrek 2020, Science Deanery magazine for the year 2020.



Fr. George Thadathil

Before the release of IT Policy handbook, Fr. George Thadathil, Principal, explained the background that led to the work on the policy. For the benefit of guest speakers, he mentioned that the institution had its own in-house developed Enterprise Resource Planning software, had already embarked on the Learning Management System usage prior to the pandemic situation, and during the pandemic had taken recourse to experimenting and adopting various technologies for online education. Moreover, the institution has its social media presence. On the basis of various experiences over the years, our institution has felt the need to develop its own IT policy.

Then followed Valedictory session where participants who were physically present were awarded Certificates, and the main speakers, all of whom participated online, were informed that e-certificates would be sent to them followed by physical certificates by post. Fr. Vice Principal handed out the certificates.



**Release of IT Policy handbook and DigiTrek 2020 magazine**



**Certificate ceremony**

Finally, Vote of thanks was given by Mr. Bikramjit Chandra, on behalf of the organising committee.

This was followed by a photo session inside the Hall, and one outside the New College building.

Number of participants were as follows:

Online – 58

Offline - 25

**Responsibility Chart:**

<b>Registration</b>	<b>Certificates</b>
Faculty in charge: Ms. Snigdha Roy	Ms. Yadika Prasad, assisted by Mr. Amit Lepcha
<b>Brochure, posters, invitations</b>	<b>Food</b>
Faculty in charge: Mr. Subhajit Bose, Mr. Tanay Bhadra	Faculty in charge: Mr. Abhijit Dey
<b>Technical</b>	<b>Reporting</b>
Faculty in charge: Ms. Yadika Prasad, assisted by Mr. Simon Lepcha and Mr. Praveen (Cyril ) Singh	Faculty in charge: Mr. Dhirodatta Subba
<b>Photography</b>	<b>Logistics</b>
Faculty charge: Mr. Subhajit Paul	Faculty charge: Mr. Mayukh Mazumdar and Mr. Anuj Bhagat



Onsite participants

The organising committee is ever grateful to the College management without whose support and blessings this event would not have been possible. This is the fifth consecutive year we, the Science Departments, have been privileged to host this National Conference. We express our heartfelt gratitude to all the volunteers – students, support staff, campus coordinators and faculties. With everyone's cooperation we hope to take our Institution forward in the path of excellence.

Report compiled by:

*Mr. Dhirodatta Subba, Dean (Science) & HoD, Department of CSA*

**Credits:**

*Mr. Amit Lepcha, Graphics Designer*

*Mr. Subhajit Paul, Photography*

*And the student volunteers (Amit Singh, Rahul Chettri and Nawraj Luitel - BCA third semester)*

## Webinar Report

Department: Economics

Date: 6.02.2021

*Debasmita Dutta*  
Faculty,  
Department of Economics



On 6<sup>th</sup> of February, 2021, at the behest of Department of Economics, the Salesian Research Centre in collaboration with IQAC organised an online seminar titled ***“Inside Data Science”***.

Mr Abhik Mukherjee, research associate at Counterpoint Research was gracious enough to present a special talk.

The faculty and particularly the students were enthused with this particular topic primarily because of its crucial significance in today's world.

It was a wonderful seminar which left all of us in attendance with additional insight on the subject and the world of Data science in general.



Salesian College Siliguri Campus  
Department of Physics

**Report on the Departmental Activity from January to June 2021**

**Webinar Title:** "An introduction to Nano: the fascinating world of nanotechnology"

**Date:** 11.01.2021, **Time:** 11:00 AM

**Platform:** Google Meet

**Links:** <https://forms.gle/Fcw8DfLgmwkGD5f6A> (registration)

<https://meet.google.com/yxp-brrv-qgz> (link to the webinar)

Total registration: 69

**Abstract:**

The talk encompassed basics in nanotechnology taking into consideration the intriguing properties of nano-materials/nanoparticles and their application. In addition, the state of the art characterization techniques to probe the physiochemical properties of nanomaterials were also discussed.

**Resource person:**

Dr. Amretashis Sengupta (SERB Research Scientist at the University of North Bengal)

**About Dr. Sengupta:**

Dr. Sengupta is currently a SERB Research Scientist at the University of North Bengal. He has a number of varied interests in the field of nanotechnology and materials science but is primarily focused on the properties of low dimensional systems and their possible integration into Li/Na ion batteries and solar cells. He originally did his Masters in Physics from the University of North Bengal before branching into nanotechnology with an M.Tech and a Ph.D. in Engineering from Jadavpur University. He has done a significant amount of post-doctoral work: both nationally in the Indian Institute of Science, and internationally in the University of Bremen in Germany and the University of Glasgow in the UK. He has also co-authored an introductory textbook on nanotechnology titled "Introduction to Nano - Basics to Nanoscience and Nanotechnology".

**Summary of the webinar:**

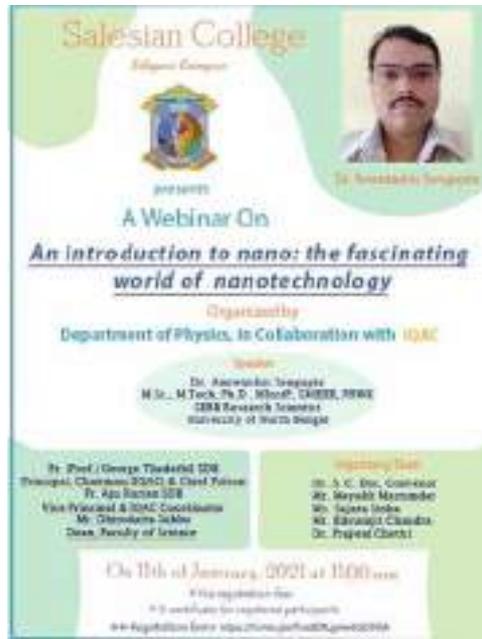
Dr. Sengupta, introduced the how and why the properties of matter changes as we scale down their dimension from bulk to nanometer range. He presented the different methods on how one can synthesize nanomaterials. The lecture indeed carried a unique flavor as Dr. Sengupta explained the practical applications of nanomaterials and how technology can transcend to newer heights once the commercial production of nanomaterials become feasible.

In parallel, he also explained about the working of different state-of-the-art characterizing instruments such as X-ray diffractometer, Scanning Electron Microscope etc. Overall, the lecture was oriented towards the undergraduate students.

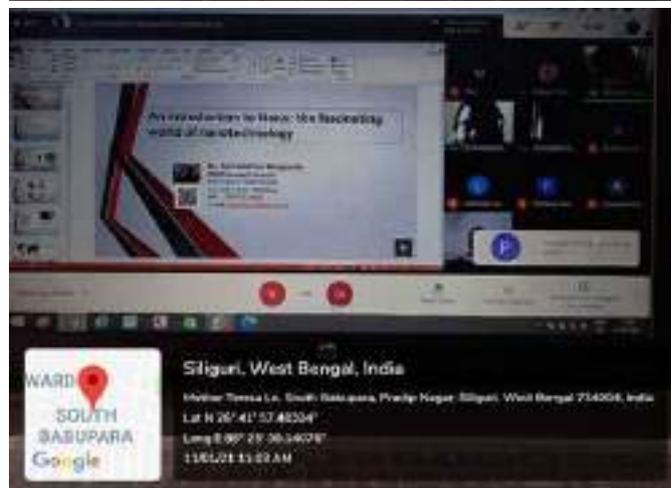
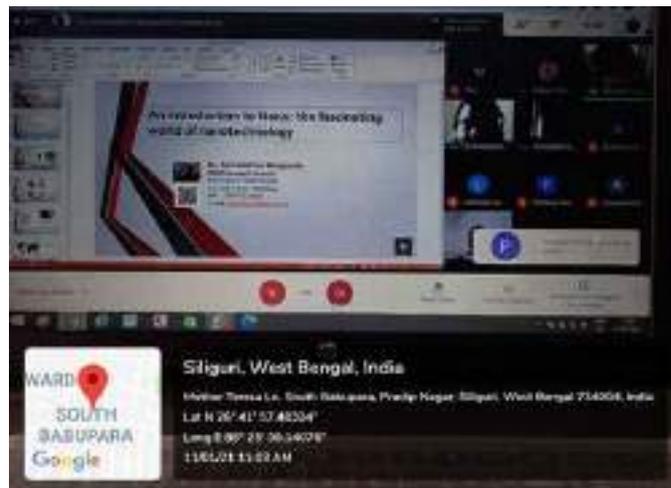
The presentation was hosted by Mr. Bikramjit Chanda (Asst. Prof. – Physics), Ms. Sujata Sinha (Asst. Prof. – Physics) was in charge of Q&A session, Mr. Mayukh Majumdar (Asst. Prof. – Physics)

gave thoughts for the talk and Dr. Prajwal Chettri (Asst. Prof. – Physics) gave vote of thanks to the Speaker as well as to the audiences.

**Flyer:**



Some glimpses of the webinar:



## Departmental Activity: Student Presentations

*Sujata Sinha*  
Faculty, Dept. of Physics

In order to inculcate ethics, etiquette, communication skills and inter-personality development among students the Department of Physics has been conducting weekly (Saturdays) in-house seminar.

The goal of this activity is to bring confidence among students pertaining to their verbal and representational skills and also to nurture their understanding of basic sciences and their applications. The students usually present on topics based on their syllabus along with practical applications of the theory with real life examples. This gives students an opportunity to not only score well in exam but also showcases whatever that they are learning in Physics indeed has practical implications which facilitates in developing interest towards science and in particular, Physics.

All the students are divided into seven groups for this weekly event. Two groups will present on one day. Each group is allowed to present for maximum up to 20 mins following by Q&A session. In addition, on-spot evaluation of presentations made is being done by teachers, student audiences and student participants using Google forms. addition, on-spot evaluation of presentations made is being done by teachers, student audiences and student participants using Google forms.

At the end of the session, each faculty deliberates talk on flaws found during presentation with regard to references, presentation construction skills etc where-ever necessary.

Following are the details of presentation,

### Day 1 ( 24<sup>th</sup> April, 2021)

#### Curie Group

- **Members:** Adesh Saha (4<sup>th</sup> sem), Khushi Gurung (2<sup>nd</sup> sem) , Lachung Lepcha (2<sup>nd</sup> sem).
- **Topic:** Photoelectric effect
- **Abstract:** - The photoelectric effect occurs when you shine light on a piece of metal and electrons are ejected from the metal. This behaviour is understood by assuming that the incident light consists of photons, each photon carrying a definite amount of energy. The Nobel Prize in Physics 1921 was awarded to Albert Einstein "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect."

#### Sudarshan Group

- **Members:** Neha Chettri (2<sup>nd</sup> sem) , Shrawan Rai(4<sup>th</sup> sem).
- **Topic:** Cyclotron.
- **Abstract:** Introduction to compact particle accelerator named cyclotron. A cyclotron accelerates a [charged particle beam](#) using a [high frequency](#) alternating [voltage](#). One of the most interesting applications of motion of charge particles in electric and magnetic fields is Cyclotron.

## Day 2 (8<sup>th</sup> May, 2021)

### **Bose group**

- **Members:** Arati Lohar (2nd Sem), Priyam Rai (4th Sem) and Sudhanshu Pradhan (2nd Sem).
- **Topic:** Aurora – the lightening effect
- **Abstract:** An aurora is a natural phenomenon which is characterised by a display of a natural-coloured (green, red, yellow or white) light in the sky. It is a light show which is caused when electrically-charged particles from the sun collide with particles from gases such as oxygen and nitrogen present in the Earth's atmosphere.

### **Saha Group**

- **Members:** Aayush Pradhan (6th Sem).
- **Topic:** Optical fibres
- **Abstract:** A discussion on Fiber optics as they are important for telecommunication for worldwide broad band networks. Optical fibers provide enormous and unsurpassed transmission bandwidth with negligible latency and are now the transmission medium of choice for long distance and high data rate transmission rate in the field of telecommunication.

## Day 3 ( 15<sup>th</sup> May, 2021)

### **Joselyn Group**

- **Members:** Aryanjali Sharma (4<sup>th</sup> sem ), Nirupan Thapa (2<sup>nd</sup> sem), Pewang Tamang (2<sup>nd</sup> sem).
- **Topic:** Pulsars.
- **Abstract:** Pulsars are remarkable clocklike celestial sources that are believed to be rotating neutron stars formed in supernova explosions. They are valuable tools for investigations into topics such as neutron star interiors, globular cluster dynamics, the structure of the interstellar medium, and gravitational physics. A comparison of arrival times from an array of different pulsars also reveals the effect of gravitational waves.

### **Meitner Group**

- **Members:** Rudraneel Chakraborty (4<sup>th</sup> sem) , Tithi Moktan (4<sup>th</sup> sem), Sidarth Rai (2<sup>nd</sup> sem).
- **Topic:** A case study of the Martian atmosphere.
- **Abstract:** Carbon dioxide was the only known constituent of the Martian atmosphere from its discovery in 1947 until 1963, when water vapor was identified in the planet's spectrum. High-resolution ground-based spectroscopy and spacecraft observations in the next decade added CO, O<sub>2</sub>, O<sub>3</sub>, and showed that the atmospheric surface pressure on Mars is more than 2 orders of magnitude lower than it is on Earth. How the Martian atmosphere has evolved along the years detection of methane gas and its possible explanation.

Day 5 ( 22<sup>th</sup> May, 2021)

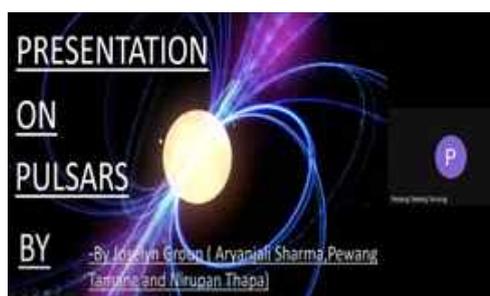
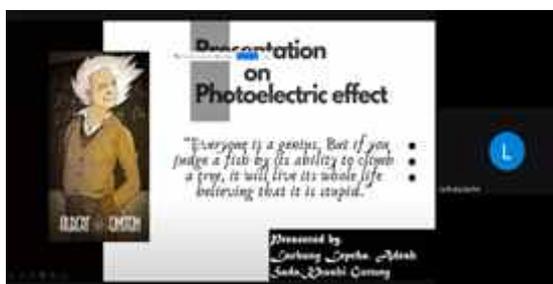
### Raychaudhury Group

- **Members:** Ashweni Chettri (4<sup>th</sup> sem), Subhayu Bose (2<sup>nd</sup> sem).
- **Topic:** Heat Death of the universe
- **Abstract:** The heat death of the universe (also known as the Big Chill or Big Freeze) is a theory on the ultimate fate of the universe, which suggests the universe would evolve to a state of no thermodynamic free energy and would therefore be unable to sustain processes that increase entropy. Heat death does not imply any particular absolute temperature; it only requires that temperature differences or other processes may no longer be exploited to perform work.

\*\*\*\*\*

- ⌘ Due to personal complications from COVID, some students were forced to be absent and would be giving their presentations at a later date.
- ⌘ All the presentations are uploaded on the following Youtube channel  
<https://www.youtube.com/channel/UCXkX-spFy9dNn4tSRqRgP2A>

Glimpse of the events,



**“The mind is not a vessel to be filled, but a fire to be kindled.”**

*Ashmita Sinha*  
BCA (6th Semester)

Life is great. Every good and bad moments of life combine simultaneously to give an experience of the subject ‘life’. Do we ever realise how great our human race is in terms of intelligence. We possess an engine to run our souls with the most anticipated mechanism – “the mind”.

It may be referred to a bio – computer with optional intelligence. The mind is an instrument to be mastered. In the long process of evolution and civilization, our race has adopted the method of education, as the genuine and sparing way to cultivate the spontaneous mind.

The above quote is a module and guideline for the young minds of all nations. This module guides us as students to discover things for ourselves and spur us in to acquire knowledge rather than bombard ourselves with a mass of information, that most probably we wouldn’t remember.

The mind is never devoid of thoughts. By nature’s law the human body is awarded a thoughtful mind. What the mind can conceive, it can achieve. The idea of the quote is that our minds, if given the proper upkeep, desire, motivation, and due encouragement, could burn on forever. Human mind is never limited to learn a certain amount of thing, therefore not a vessel to be filled. A human mind which has been kindled is but a soul with infinite possibility.

The human mind is our fundamental resource. It has exactly the same power as the hand : not merely to grasp the world, but to change it. Whatever the mind can conceive and believe, it can achieve. If we look up a dictionary ‘mind’ is defined as a part or faculty of a person by which one feels, perceives, thinks, remembers, desires and imagined. It is the individual consciousness, memory, or recollection, opinion or sentiment, focus of thought or attention.

Knowledge is not something that is given to children as though they were empty vessels to be filled. Children acquire knowledge about the physical and social worlds in which they live through playful interaction with objects and people. Children do not need to be forced to learn; they are motivated by their own desire to make sense of their world. They learn by making connections between new and prior knowledge. It is a known fact that learning is a complex process that results from the interaction of childrens own thinking and their own experiences in the eternal world. As children get older, they acquire new skills and experiences that facilitate the learning process. For example, as children grow physically, they are more able manipulate and adapt with their environment. Also, as children mature, they are more able to understand the point of view of other people.

Learning never exhausts the mind. Once children learn how to learn, nothing is going to narrow their mind. Learning is contagious where one idea sparks another. The wisest mind has always something yet to learn. All the world is a laboratory to the inquiring mind. Every interaction is an opportunity for him to learn. Man's mind, once stretched by a new idea, never regains its original dimensions. Therefore, the mind once enlightened cannot again become dark .

Knowledge and wisdom are the essential woods to ablaze the fire of the mind. Books, teachers, parents, friends and the surrounding environment play the main role in delivering knowledge and wisdom. A teacher is but supersoul, in whose companion the kindled fire soars and the mind gets elevated. It is the supreme art of the teacher to awaken joy in creative expression and knowledge. Teachers candle to light the minds by guiding them open new ideas. It is He, who helps in embracement of the mind with knowledge. He imparts basic sustainable knowledge so that one may further lit himself up and other minds too. Books open the mind, broaden it and strengthen it as nothing else can. Reading improves brain power and is also a good habit to enhance one's mind.

Which speaking of a blazing mind, we have to take into account the various minds of different geniuses, abilities productivities and outcomes. "Everybody is a genius. But if a fish is judged by its ability to climb a tree, it will live its whole life believing that it is stupid." Each person is the poet of his own mind and his genius is his talent set on fire by courage. Nothing is at last sacred but the integrity of ones mind. Therefore one should equip himself with challenges of the mind. The mind takes many forms during one's lifetime. When it is weak , situation becomes an opportunity.

There are negative aspects of the mind too. The mind being a powerful force, it can enslave us or empower us. It can plunge us into depths of misery or take us to the heights of ecstasy. Therefore, we should learn to use the power wisely. The power of mind cannot come from I'll fed brain. Therefore one should learn to cultivate the mind well. Even ones worst enemy cannot harm him as much as his own unguarded thoughts.

By three methods we learn wisdoms: First by reflection, which is noblest; second by imitation, which is easiest; and third by experience which is bitterest. To acquire knowledge, one must study; but to acquire wisdom , one must observe. There is a saying "The eyes are useless when the mind is blind". This proverb refers to all those people who give up too easily. The greatest loss in life is not death, it is what does inside us while we're still alive. As iron cruds from disuse; water loses purity from stagnation; even so does inaction sap the vigor of the mind .

There are too many brainwares these days. In the age of technology there is constant access to vast amounts of information. The basket overflows; people get overwhelmed. Remember, the mind should be logical and accurate, and not overtasked. A good traveller is one who travels with the mind. Remember you are a human. You must read, you must preserve, you must sit up nights, you must inquire, and exert the utmost power of your mind . If one way does not lead to the desired meaning, take another; if obstacles arise, then still another; until, if your strength holds out, you will find that clear which at first looked dark.



IoT as it stands today is predominantly consumer led, and the sectors that can envisage value are those such as healthcare, retail, manufacturing and construction. These are industries that are looking to revolutionise their customer interaction experience – they are considering how the IoT can enhance the services they provide to their customers.

To take advantage of the IoT, however, all these businesses will need to import new skills – they will need partners with expertise in all the technologies that ultimately unlock the value of the data in all these “things”. Technologies such as:

- Converged and intelligent network platforms that are able to connect “things” to each other and the systems that control them, be that wired or wireless
- Data center infrastructure that can scale to accommodate the flood of data, that is agile enough to leverage process changes and powerful enough to analyse all the data in the first place.
- Next generation security that provides the visibility and control the business will need to ensure that the “things” do what they are meant to, and don't create holes ready for exploitation
- Business analytics that provide meaningful insight, and that are able to visualise information in a way the business understands

Perhaps more importantly, these partners cannot be 'technology first'. They must be genuinely customer and business orientated – putting customers at the center to truly understand their markets.

Only that combination of customer centricity, insight and technical excellence will allow these partners to navigate the complexities inherent in IoT; to identify and seize the value IoT represents for every customer.

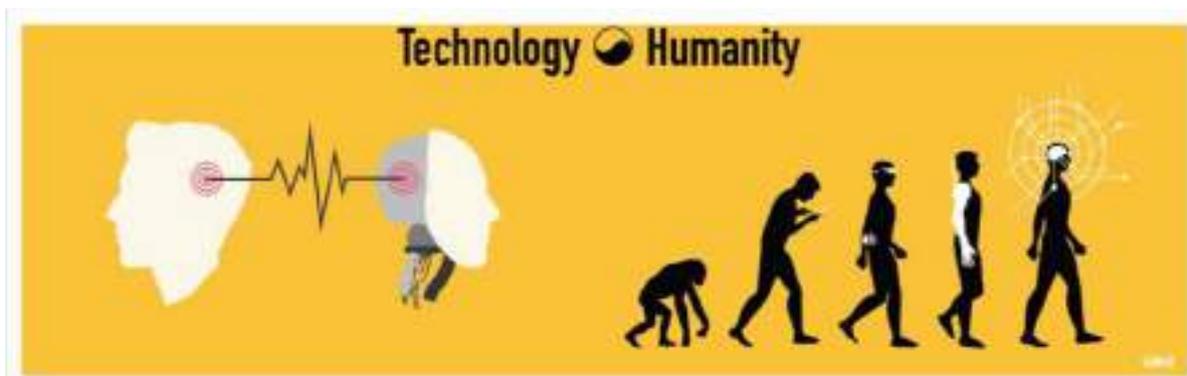
## Technology Transforming Humanity

*Tshewang Tamang*  
BCA (6th Semester)

Human interest in exploring the unknown has always been universal and enduring. While, over the years the nature of exploration has changed fundamentally, humans have always been keen to explore the unknown and discover new worlds. In pursuit of unknown, it is our imagination, ideas, innovations, and inventions that are helping us push the boundaries of our exploration limits. It is the never-ending human drive that pushes us further to discover new worlds. Imagination has always been an indicator of human intelligence, and each new idea and innovation is helping us push the boundaries of human exploration further. *Technology, which gives us the foundation on which we can define and design the human ecosystem beyond cyberspace, geospace, and space, is pushing these boundaries.*

*Where would it take us in the coming years?*

*From the internet to the brain-net, biological engineering to bio-economies, molecular manufacturing to self-replicating systems, 3D printing to distributed additive manufacturing, artificial intelligence-driven automation to augmented intelligence, virtual reality to augmented reality, neuromorphic computing to quantum computing, stem cells to regenerative medicine, nanosatellites to small satellites, brain mapping to more, we are witnessing dramatic advances in science and technology that is pushing our exploratory limits.*

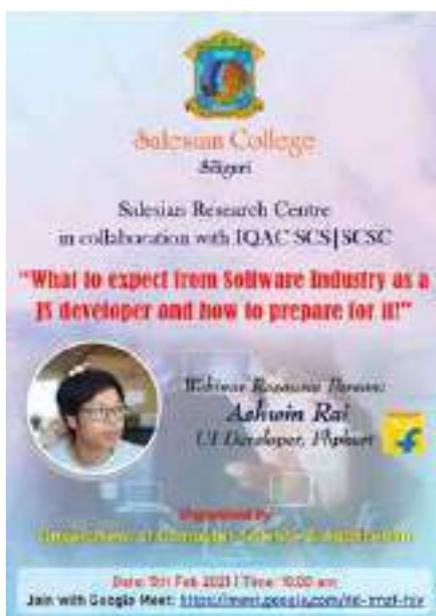


*There has never been a better time for ideas, imagination, and intelligence to create and invent as the emerging technology trends bring so many fundamentally transformative opportunities for the future of humanity. As we further explore and understand the very meaning of human existence in the universe. The next years and decades will see further dramatic shifts in technology and an economy driven by fast-paced technological innovation. Machine learning and neural nets are unleashing exponential increase in autonomous computational power. With further technological step changes – changing forms of labour, the design of novel materials, synthetic biology, new energy systems and new technological modes of controlling and managing the planet's resources – industrial humanity will further deepen its imprint on the Earth and create further uncertainties and vulnerabilities for its safe inhabitation.*

## Guest talk: “What to expect from Software Industry as a Java Script developer and how to prepare for it”

5<sup>th</sup> February 2021

*Yadika Prasad*  
Faculty, Dept. of CSA



Department of Computer Science and Applications organised a guest talk by Mr. Aswin Rai, User Interface Developer at Flipkart.

Fr. George Thadathil, Principal, inaugurated the session with prayer. He mentioned that we as a community are always eager to learn more. Then Mr. Dhirodatta Subba, Head, Department of Computer Science and Applications, and also the Dean of Science, welcomed Mr. Ashwin Rai and wished him the very best for his presentation.

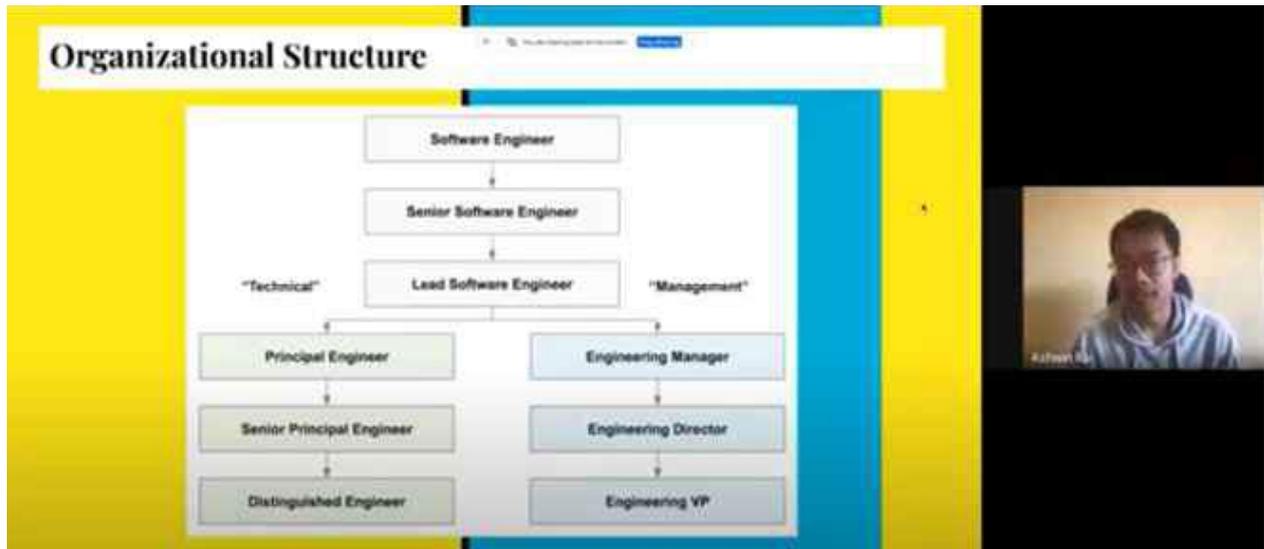
Ms. Yadika Prasad, faculty of the Department and IT Coordinator, then introduced her colleague from the post graduation days at Sikkim Manipal Institute of Technology, Sikkim.

After post graduation. Mr. Ashwin went on to work with a startup company where he worked for two years and had the responsibility of designing and developing the web site from scratch for a client.

Mr. Ashwin then started by explaining the differences between product based companies and service based companies. He mentioned about his own experience of working in a startup company and then moving on to Established company.



Then he talked about the organisational structure of a Software Company. This was followed by what is called as the front end of a software, which is also called the User Interface.



The various technologies that are in use in the market today for developing the User Interface. Among them the Java Script based technologies like the Node JS, Angular JS, Knockout. js, React, etc. He also mentioned different platforms for which interfaces are done, for example, Mobile platforms, Desktops, IoT devices, etc. Then he talked about the history of Java Script and its evolution. Further, he demonstrated the working of Java Script by playing a video and how text are displayed in a running video. He demonstrated a number of capabilities of Java Script programming in designing and developing User Interfaces. At the end there was interactive session and a number of students posed various questions which Ashwin aptly answered.<sup>24</sup>

# Cyber Shikshak: A Cybersecurity Awareness Training Program for Teachers of West Bengal

17<sup>th</sup> March 2021

Sonali Rai  
Head, Salesian Tech



No: CS-CoE/412/2021

Date: 10/03/2021

To:  
The Principal/ Director/ Teacher in Charge  
(all) College

Sub: Cyber Shikshak - Cyber Security Awareness Training for the teachers of West Bengal - Regarding  
Sir/Madam,

Cyber Security Centre of Excellence (CS-CoE) in collaboration with Indian School of Ethical Hacking (IOEH Siliguri) is organising a Hackathon at Webel IT Park-II, Siliguri on 17<sup>th</sup> March, 2021.

In addition to this, Cyber Shikshak - a Cyber Security Awareness Training programme for the teachers of West Bengal will also be held on the same day. Cyber Shikshak is a series of training modules targeted towards self-learning of skills to identify, segregate, prevent, prevent, contain cyber threats, learning over IT infrastructure and to find out the remedy to cyber-attacks, as and when they occur.

IT infrastructure comprises IT Assets - Hardware & Software; IT Processes - Policy and SOP; IT Systems - Controls, Tools, Languages, Auditing processes and IT Applications. The uniqueness of Cyber Shikshak lies in the training of incumbents at their place of work. The training model shall comprise of classroom trainings and hands on practical sessions.

The overall duration of the Cyber Shikshak training programme would be of 3 hrs, and will commence on 17<sup>th</sup> March, 2021 at Webel IT Park, Phase - II (Paribahan Nagar, Matigara, Siliguri - 734 022) from 10.30 AM to 1.30 PM. Based on performance assessment, the participant will be given a certificate of proficiency.

You may kindly nominate any number of officials from your esteemed organisation to take part in this Cyber Shikshak training programme and upgrade their skill for better cyber incident response posture.

For registration, kindly advise your nominated official to click the following link and get themselves registered.

<https://events.ntr.org/11/index.php>

Awaiting early nomination and thanking you.

Yours faithfully,

Joint Secretary  
Cyber Security Centre of Excellence (CS-CoE)  
&  
Joint Secretary, Department of Information Technology & Electronics, Government of West Bengal



(For more information visit)

Webel Bhawan, Ground Floor, Block - EP & GP, Sector - V, Bithanmagar, Salt Lake, Kolkata - 700 091

Salesian College received invitation from Cyber Security Centre of Excellence, Department of Information Technology & Electronics, Government of West Bengal for the program “Cyber Shikshak – a Cybersecurity Awareness Training” for School and College teachers of West Bengal. This was organised in collaboration with ISOEH Siliguri.

This was the first program of its kind in Siliguri and was conducted at Webel IT Part, Phase II, Paribahan Nagar, Matigara, Siliguri. Four members from the institution participated – Mr. Anirban Ghosh, Ms. Sonali Rai and Mr. Dhirodatta Subba and Ms. Ujjaini Ghosh.

Training was conducted by Mr. Nirupam Choudhury, Regional Director at East-NASSCOM and Mr. Sandeep Sengupta, MD, ISOEH.

Participants were faculty from School and Colleges. There were some government representatives at the workshop.



The last session of the workshop was a quiz competition based on the materials taught. It was conducted online using the Kahout app. Ms Solali Rai from Salesian College stood third among approximately 60 participants. Not very far behind was Mr. Anirban Ghosh, faculty from our College. He stood tenth among all. Kudos to both of them!

The program ended with sumptuous lunch for all.



# North Bengal Hackathon

17<sup>th</sup> March 2021

*Amit Singh*  
BCA (4<sup>th</sup> Semester)



There was a press release for 17th March North Bengal Hackathon at Siliguri Journalist Club. This Hackathon was open to all. Top 3 Winners would get total cash prize of Rs10,000/-. Every participant would get certificate of participation.

This was the very first event of its kind in North Bengal. Salesian College was privileged to be invited. Five students of the College participated in this prestigious event.

Competition was of 25 levels. At each level participant had to find a FLAG (clue). Clue at each level would give instructions for next level. The event took place from 11 am to 4pm at:

Indian School of Ethical Hacking,  
Webel IT Park, Phase-III, Matigara,  
Siliguri (near Khaprail More).



Unnamed Road, Matigara, West Bengal 734010, India

Latitude 26°43'29.364"N Longitude 88°22'31.286"E

LOCAL 02:39 PM GMT 09:09 AM WEDNESDAY 17.03.2021 ALTITU  
DE 79  
METER

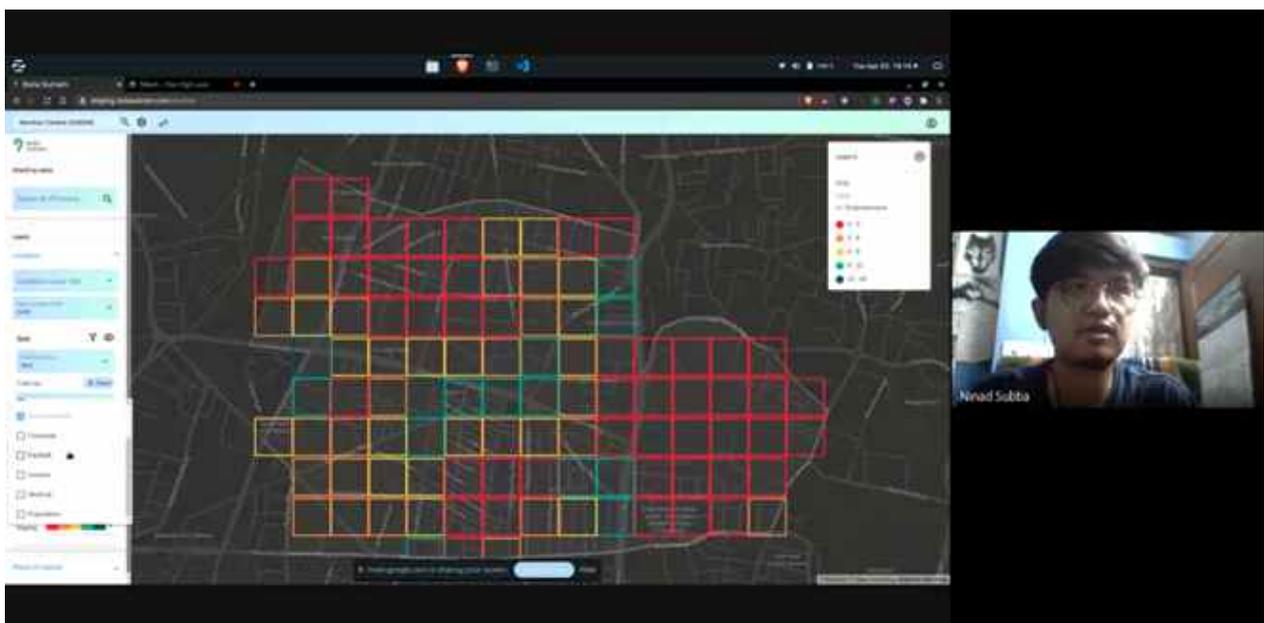
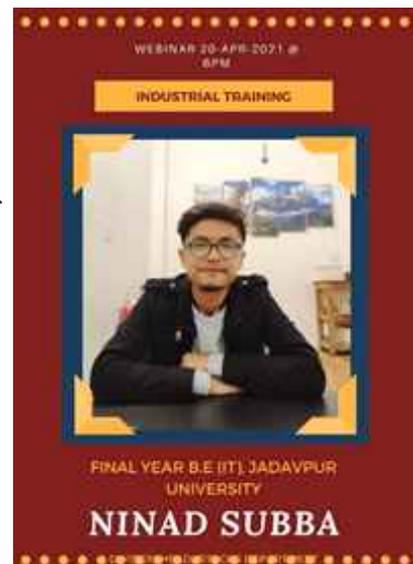
## Guest talk / Webinar on Industrial Training Experience and Placement, 20<sup>th</sup> April 2021

*Drishya Agarwal*  
BCA (6<sup>th</sup> Semester)

Department of Computer Science and Applications organised a guest talk by Mr. Ninad Subba, final year student of BE (IT), Jadavpur University.

It was more of experience sharing with our students about the way how the process of selection for industrial training works in Jadavpur University which is a premiere institution in the state of West Bengal. How long the training took place in the third year itself and what kind of work exposure was given in the company **Data Sutram**, established by the ex-students of the same University. It was mentioned that the company was an upstart one, located in the Salt Lake area of Kolkata.

Mr. Ninad Subba then mentioned that the company management was happy with his performance and offered him job while he is in the final year of education, and that he has already started working for them as his academic career is coming to an end. He drew the attention of participants to the web site of the company and started explaining about the current project that is under development. That it was an Artificial Intelligence based project to help businesses locate the prospect of a store location in any city. Some of the parameters were the affluence of residents, other competitive business locations, geographical zones etc.



Overall, it was a very interesting discussion as students got a glimpse of live project and got to interact with someone who is almost about their age, only slightly senior. There were also questions on technology which are good to learn for their higher job prospects.

## Industrial Training with ISOEH February – May, 2021

*Divit Rana*  
BCA (6<sup>th</sup> Semester)

Salesian College, Siliguri Campus, signed the Memorandum of Understanding (MoU) with Indian School of Ethical Hacking (ISOEH), a Kolkata based company engaged in promoting Cybersecurity Education and Certification on 28<sup>th</sup> February, 2020. Along with Cybersecurity, the company also provides trainings on Software Development such as Android Programming, Web Development etc.

The MoU was for providing skills training by way of workshops or webinars and Industrial Training, primarily for final year students of the Department of Computer Science and Applications. As per agreement, ISOEH provided three free workshops to our students by the end of last year, 2020. This year, once our Institution finalised the list of participants, Industrial training for three groups of students started on 6<sup>th</sup> February. As per interest shown by students, the three groups were created for Android Programming, Ethical Hacking and Web Development. This was a certification course requiring minimum 40 hours of class, theory and practical combined. Training for all three courses ended on 29<sup>th</sup> May. There were 33 students who had enrolled at the beginning. But as the days progressed, some dropped due to a number of reasons.

Course	Faculty	Enrolled	Completed	Remark
Android Development	Mr. Sagar Neogi	11	3	7 students did not submit project
Ethical Hacking	Mr. Soumya Mukhopadhyay	20	10	One did not submit project and the rest dropped out
Web Development	Mr. Soumya Mukhopadhyay	6	33	Discontinued

# ISOEH Online Workshop: Cyber security Career Awareness

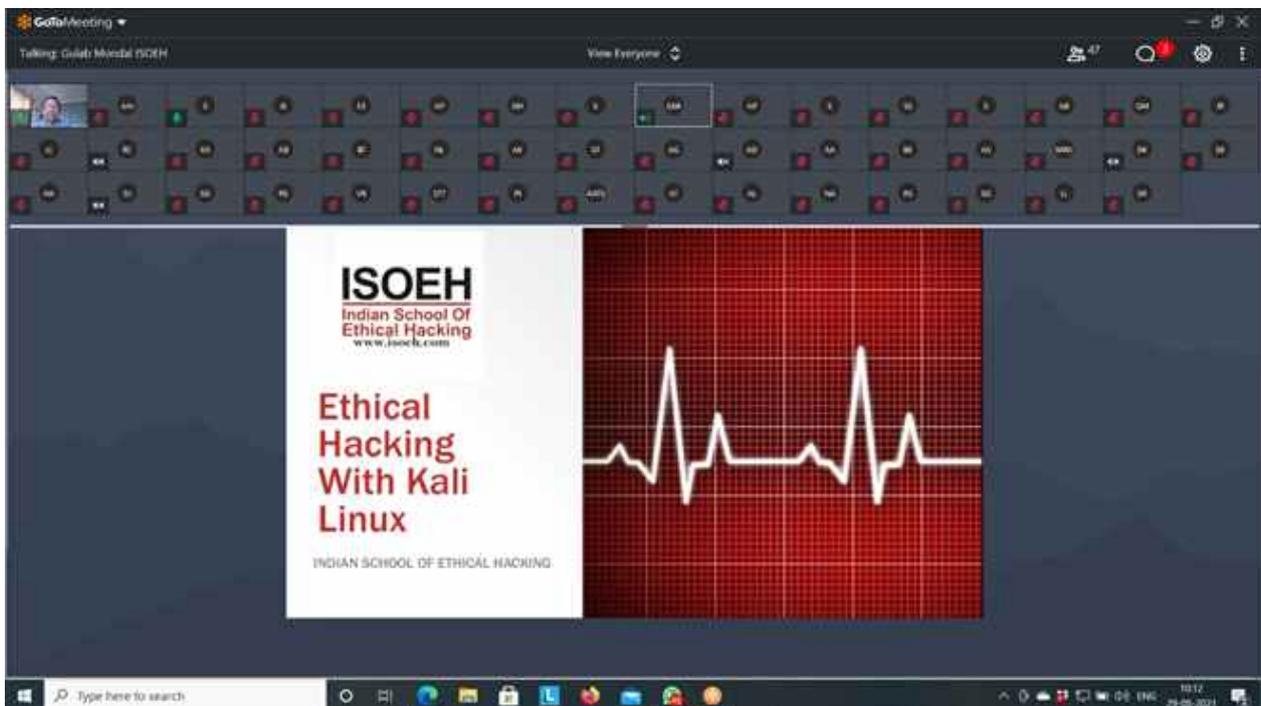
29<sup>th</sup> May 2021

Priyanka Jaiswal  
BCA (6<sup>th</sup> Semester)

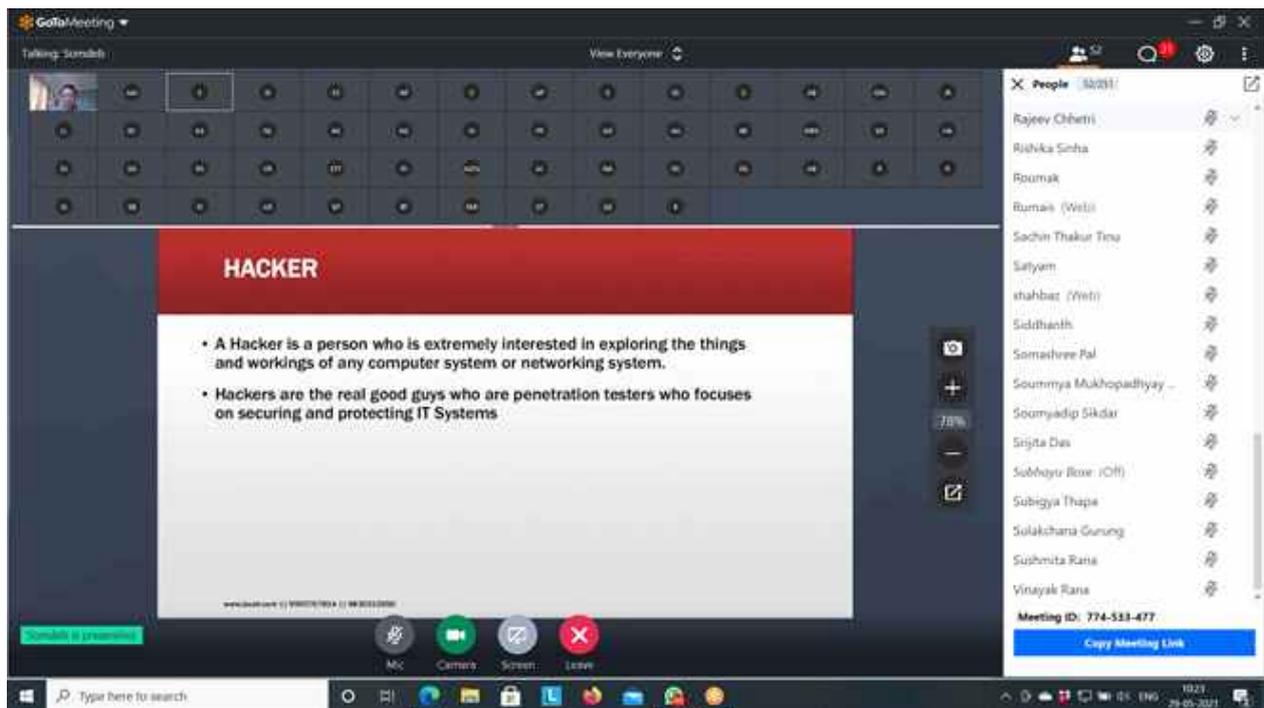
As per agreement with Indian School of Ethical Hacking (ISOEH) of having quarterly free workshop / webinar with our College, this workshop was organised for the second quarter of 2021.

This was the first workshop on Cyber security for our first year students. Students from Science departments participated, barring a few from other departments. From the department of Computer Science and Applications, a few students from second year also participated.

Mr. Gulab Mondal, senior consultant of the Company, introduced the concept of Ethical Hacking. He then introduced the trainer for this program, Mr. Somdeb Chakraborty.



Mr. Somdeb then talked about the fundamentals of Cyber security. His session was very interactive. He interacted with students asking them what their understanding of the issue is. Then he mentioned about the importance of learning this art and how important it is today as many businesses, and education are going online due to the prevailing situation of the pandemic. He mentioned about the job prospects this expertise will bring and how the Government needs 500,000 trained personnel but as of today only about 70,000 have been qualified to some extent.



He then went on to demonstration. First demonstration was hacking another PC using Metasploit utility of Kali Linux. This was a live demonstration and it was appreciated by students. He then went on to demonstrate web site hacking using SQL injection. It was a live site and the hacking showed how it was possible to obtain database information without even logging into the system. This was again very much appreciated by the students. Finally, he went on to demonstrate mobile phone hacking where he showed how one could take control of another person's mobile phone.

At the end, there was interactive session and many students asked many questions which were very well answered by the trainer. This program was attended by about 55 students.

# “Role Of Agriculture In Building A Spread Fast Economy”: Agriculture The Only Silver Lining.

*Rajashree Saha  
Anisha Pandey  
Susmita Rana*

Department of Economics

## **Introduction**

Agriculture is the deliberate affect to modify a portion of Earth's surface through the cultivation of crops and raising of livestock for economic gain.

Agricultural development means providing assistance to the crop producers with the help of various agricultural resources.

## **Objectives**

The main objective of agriculture is to give space to the growth rate of agricultural development and crop production and productivity which will strengthen the economic status of farmers and uplift their lifestyle.

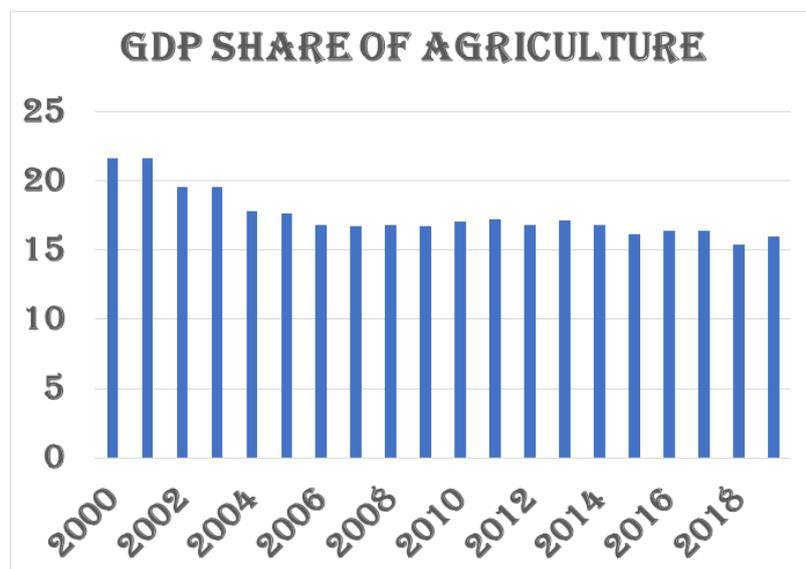
## **Ways In Which Agriculture boosts a country's economy:**

- Contribution of Agriculture to employment generation for rural people and improving rural welfare - It provides employment opportunities for rural people on a large scale in underdeveloped and developing countries. It is an important source of livelihood. The new agricultural technology is represented by the use of HYV seeds, fertilizers, pesticides along with the optimum quantity of water irrigation, all of these leads to expansion in agricultural employment. So these inputs of high yielding technology enables the farmers to adopt multiple cropping which has large employment potential.
- Contribution of Agriculture as the basic source of food supply - Agriculture is the basic source of food supply of all the countries of the world. Due to heavy pressure on population in Underdeveloped and developing countries and its rapid increase the demand for food is increasing at a fast rate. If Agriculture fails to meet the rising demand of food products it is found to affect the growth rate of economy adversely.
- Agricultural sector acts as a pre-requisite for raw material- Agricultural advancement is necessary for improving the supply of raw materials for the agro based industries especially in developing countries. The shortage of agricultural good has its impact upon industrial production and a consequent increase in the general price level.
- Agricultural sector is helpful in reducing inequality – In a country which is predominantly agricultural and overpopulated there is greater inequality of income between the rural and urban areas of the country. To reduce this inequality of income it's necessary to accord higher priority to agriculture. The prosperity of agriculture would raise the income of the majority of the rural population and thus the disparity in income may be reduced to a certain extent.
- Agriculture sector generates a source of foreign exchange for the country - The export of agricultural product can also be a source of foreign exchange earnings . In the initial stages of development when industrial sector has not yet developed much ,agriculture was a source of foreign exchange earning from its export of primary good .Most of the developing countries of the world are exporters of primary products . These products contribute 60 to 70 percent of their total export earnings. Thus, capacity to import capital goods and machinery for industrial development depends crucially on the export earning of the agriculture sector. If exports of agricultural goods fail to increase at a sufficiently high rate, these countries are forced to incur heavy deficit in the balance of payments resulting in a serious foreign exchange problem

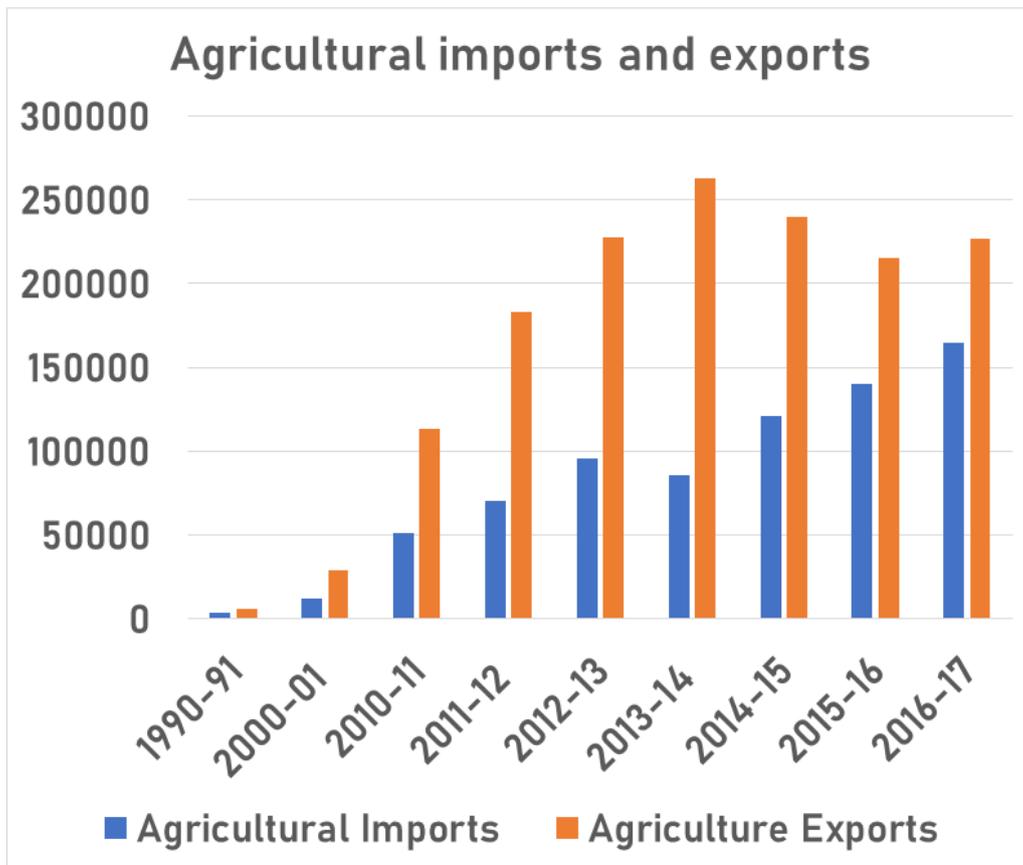
- AGRICULTURE SET TO CUSHION IMPACT OF COVID -19 ON ECONOMY IN 2020-2021.  
The Indian Economy has taken a huge hit from the coronavirus pandemic and resultant lockdown. The International Monetary Fund expects the global output to be contract by 4.9 percent in 2020 and Indian GDP to contract as much as 4.5 percent. But the agriculture sector is the silver lining in the year 2020 -2021, said by the monthly economic report for July published by the department of economic affairs.

While most of the economic activities came to a standstill in April – May 2020 due to coronavirus induced lockdown, farming activities were exempted from the nationwide lockdown to facilitate uninterrupted harvesting of Rabi crops and Kharif crops. This was a major enabling factor for the smooth flow of agricultural commodities throughout the lockdown period and across both, rural and urban areas.

Amidst all the miseries, Agriculture sector emerged as the only savior giving hope for future. Agriculture sector registered a 3.4 percent GDP growth. Had it not been a robust performance in the Agri – sector, India's GDP would have tumbled further .



**This is a graph showing the GDP share of agriculture. This graph shows that the GDP share of agriculture is highest in 2000, falls in 2018 and rises by a fraction in 2019.**



This is a graph showing the Agricultural Imports and Agricultural Exports. The graph clearly shows agricultural imports is lowest in 1990-91 and reaches its peak in 2016-17. Similarly Agricultural Exports is lowest in 1990-91 and reaches its peak in 2013-14.

#### SCHEMES INTRODUCED BY THE GOVERNMENT TO MAKE AGRICULTURE A PROFITABLE SECTOR

The agriculture sector contributed 51.9% to India's GDP in 1950. Living in a country where the cattle is worshipped as a goddess, about 60% of the population was banking on agriculture for their main source of income during the 1950s. Some of the recent developments in the agriculture and allied sector are listed below.

#### LAUNCH OF PRADHAN MANTRI FASAL BIMA YOJANA

Farming has become an unreliable sector. Farmers are always unsure of the yield they will reap, but strive to draw the maximum benefits out of their investments and effort. Often farmers might be at the receiving end, with natural calamities like droughts and floods affecting the yield adversely. To resolve the problem of unpredictable nature of farming and prevent farmer suicides in the country, the government launched PM Mantri Fasal Bima Yojana in early 2016. It's a crop insurance policy with relaxed premium rates on the principal sum insured for farmers. Implemented with a budget of Rs. 17,600 crore, this scheme will provide financial support to farmers and cover for their losses.

### LAUNCH OF PARAMPARAGAT KRISHI VIKAS YOJANA

The government has launched Paramparagat Krishi Vikas Yojana in order to address the critical importance of soil and water for improving agricultural production. The government would support and improve the organic farming practices prevalent in India. Following cluster approach mode of farming, at least 50 farmers would form a group having 50 acres of land to implement organic farming.

### AFTER GREEN, WHITE AND GOLDEN, IT'S TIME FOR BLUE

The cabinet committee on Economic Affairs (CCEA) has approved blue revolution in India. It's an integrated scheme designed to increase the productivity and profitability from aquaculture and fisheries resources, inclusive of both marine and inland. With a budget of Rs. 3,000 crore offered by the government, this scheme aims to maintain an annual growth rate of 6 to 8% of the agriculture and allied sector.

### CONCLUSION

From the above cited explanation we conclude that agricultural development is a must for the economic development of a country. Even developed countries lay emphasis on agricultural development. According to Muir, "Agricultural process is essential to provide food for growing non-agricultural labour force, raw materials for industrial production and saving and tax revenue to support development of the rest of the economy, to earn foreign exchange and to provide a growing market for domestic manufactures".

Amidst the grim, one sector – Agricultural emerged as the only saviour giving hope for future. Agricultural sector registered a 3.4 percent GDP growth. While most of the economic activity came to a standstill in April-May 2020 due to covid-19 induced lockdown, farming activities were exempted from the nationwide lockdown to facilitate uninterrupted harvesting of rabi crops and sowing of kharif crops. Had it not been a robust performance in the Agri sector, India's GDP would have tumbled further.

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# Salesian College

Sonada & Siliguri

Department of Mathematics  
Report on the guest lecture

## “Topology: a Meet & Greet”

by

**Dr Gangotryi Sorcar**

April 5, 2021

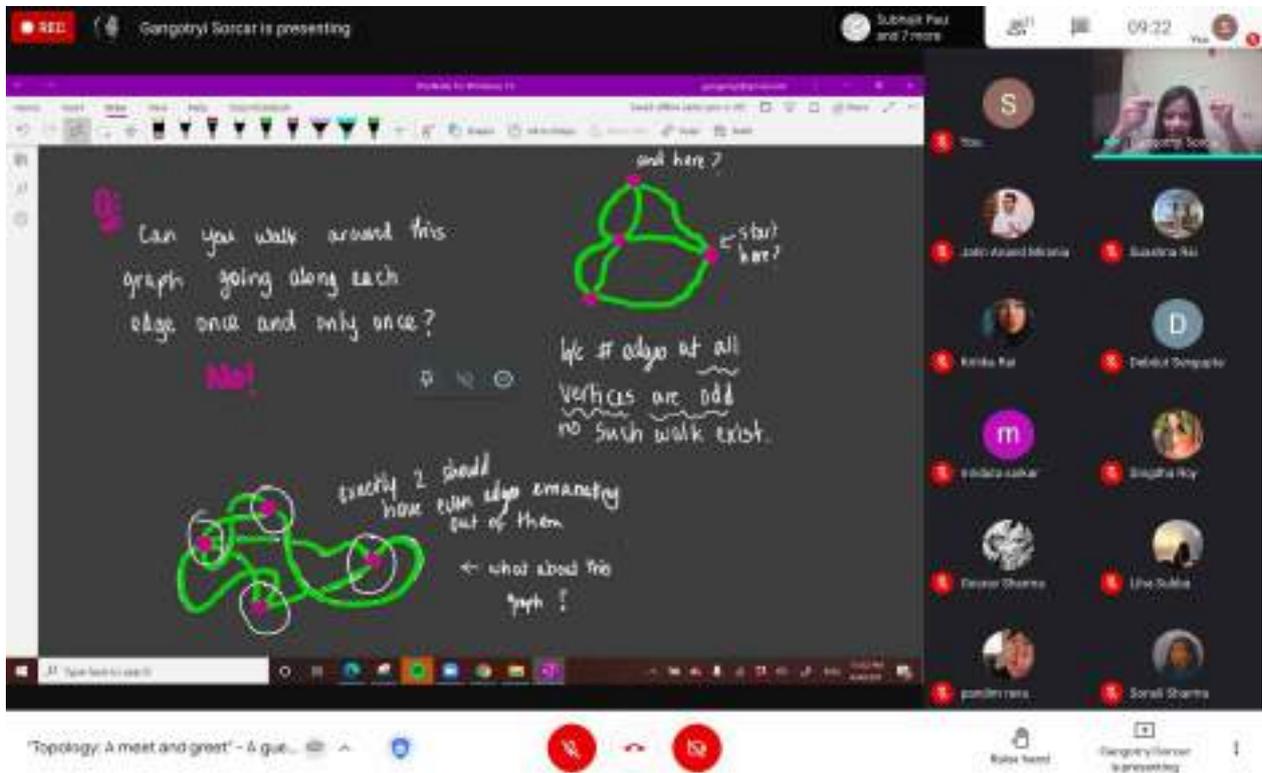
Department of Mathematics, Salesian College, Siliguri, in collaboration with the IQAC organised a guest lecture on April 5, 2021. The talk was mainly aimed for the students of the 6th semester before they start their classes from the next day. These students have the subject ‘Point-set Topology’ in the paper DSE 3A. As a motivational talk to this entirely new topic, Mr Subhajit Paul, Head, Dept. of Mathematics, organised the lecture.

The talk was delivered by Dr Gangotryi Sorcar, Temporary Asst Prof, University of Delaware, USA. As informed by Mr Paul while introducing the speaker to the house, Dr Sorcar finished her PhD from the State University of New York, Binghamton and had orchestrated different research and teaching posts at the Ohio State University and the Hebrew University, Israel in the past.

The lecture viz., “Topology: A meet & Greet” started at 9 am via the Google Meet platform using the college G-Suite facility. A total of 18 participants joined the lecture including the faculty members from the department, a student of Mathematics from the first year and two students from the department of Physics. Dr Sorcar tuned the lecture to suit the preliminaries of a varied audience. The lecture was recorded at

<https://drive.google.com/file/d/1zgxNsEw1QhP6gcPF924muzInHmSj7J1u/view?usp=sharing>





Dr Sorcar mainly discussed the Königsberg bridge problem, topological invariance of the Euler characteristic number and why continuous functions stretch or squish a space without tearing that apart with an ingenious example. She was able to retain the attention of the audience and spark their creative and analytical thinking. Jatin Mirania, a student of 6th semester, said, (her) “content was brilliant, eye contact was good, spoken both formally and informally creating good engagement, and use of words like ‘trippy’ and smiling throughout the class really took it up a notch”. She encouraged the students to ask questions during the talk and also at the Q&A session at the end, where a couple of interesting questions were tackled. It was a very positive start for this course of the semester.

Report prepared by:  
*Subhajit Paul*  
 Head, Dept. of Mathematics,  
 Salesian College, Siliguri.  
 April 6, 2021.

## Sustainable Development And Minimalism

*Srijita Das*  
*Rishika Sinha*  
*Meeran Sarshar*  
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Sustainability is a development that fulfils the demands of the present without endangering the capacity of future generations, guaranteeing the balance between economic growth, care for the environment and social well-being. In these tumultuous times when the world is growing at a breakneck speed, some are falling behind because of the adverse effects of unbalanced economic growth. It's time when humans must come out of their fantasies and sustain the living on planet earth. Sustainability is the development that satisfies the needs of the present without jeopardizing the capacity of future generations, guaranteeing the balance between economic growth, care for the environment and social well-being. In simple words, save now for a safe future!

The 17 goals of the SUSTAINABLE DEVELOPMENT laid down by the United Nations.

1. No Poverty,
2. Zero Hunger,
3. Good Health and Well-being,
4. Quality Education,
5. Gender Equality,
6. Clean Water and Sanitation,
7. Affordable and Clean Energy,
8. Decent Work,
9. Economic Growth,
10. Industry, Innovation and Infrastructure,
11. Reducing Inequality,
12. Sustainable Cities and infrastructure,
13. Responsible Consumption and Production,
14. Life Below Water,
15. Life On Land,
16. Peace, Justice, and Strong Institutions,
17. Partnerships for the Goals.

Some examples of sustainable development are:

- Developing green spaces in urban areas.
- Formulating crops rotation by reusing a land over and over again.
- Minimising usage of non renewable resources and Maximizing usage of Renewable resources like Solar Power and Wind.
- Initiating zero waste lifestyle and many of such several types of positive and efficient lifestyles.

Be it the Spouts Of water project at a school in Uganda, or growing Barley in an Algerian desert, be it a generator invented by a 15 year old Azerbaijani girl, that derives power raindrops, Sustainable Development stands high like a tree with several branches.

As per C.S. Lewis “The process of living seems to consist in coming to realize truths so ancient and simple that, if stated, they sound like barren platitudes.” In other words, a minimalist lifestyle is a process of asking WHY before you BUY. Minimalism hurts the various sectors of the economy. If more people practice minimalism, then less is consumed. But less of what? Usually, minimalism means consuming fewer FMCGs (Fast Moving Consumer Goods). The disposables industry may get hit in particular. As a result, employment in industries like, retail, automobile, manufacturing etc. will be lost.