First year completion report of DBT STAR college fund given to the Department of Physics, RKMVC College,Rahara,Year20-21.

BY DR. KALYAN BRATA CHATTERJEE

Plan of Report

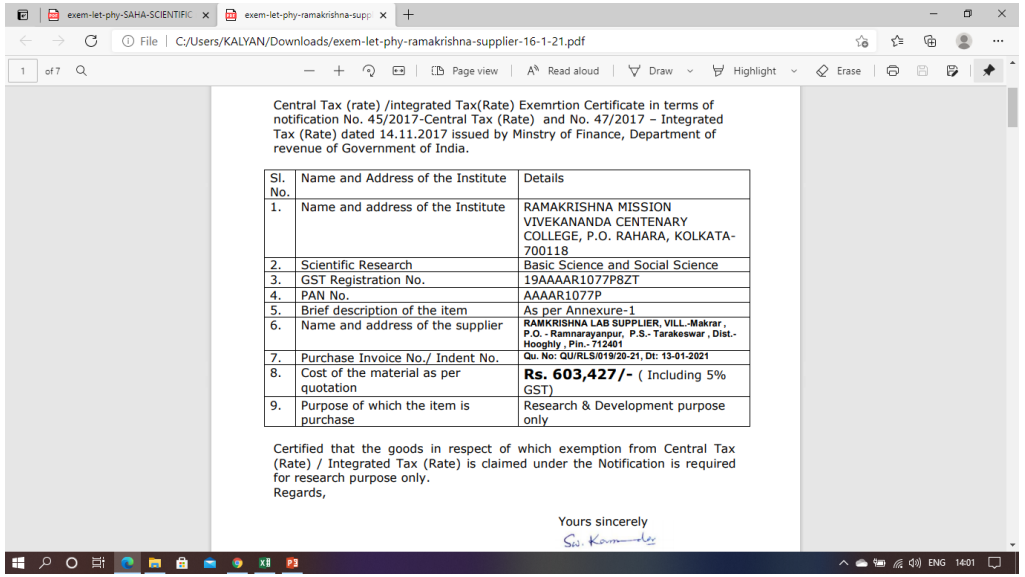
- New experiments incorporated in Physics supported under the DBT STAR college Scheme.
- Equipment procured by the Department under the scheme.
- Interdisciplinary/ Interdepartmental projects executed by the students of the Department .
- Workshops and Seminars organized by the Department under the Scheme.
- Faculty improvement programmes initiated for the faculties.
- Visit to industry and Important Labs of National Eminence.
- Lectures delivered by Experts/Speakers in relevant areas of Physics.
- Outreach Programme taken under the DBT Star College Scheme.
- Training of Lab Manpower
- Impact of the DBT STAR college Scheme on the Students Outgoing.
- Budget expenditure in the last financial year.
- Future Activities Planed.

New experiments incorporated in Physics supported under the DBT STAR college Scheme.

- 10 of new experiments prescribed in the new CBCS curriculum() in Physics which was implemented from the academic year 2017, has been procured under the scheme of DBT Star College.
- Due to COVID-19 situation we have done some Video demonstrations of those practicals through YouTube.
- Previously we were facing a shortage of instruments as the syllabus was newly implemented and we don't have sufficient amount of every instruments which is a basic need for a physics Practical Lab to run smoothly.
- We have on an average around 50 students in each semester and to provide sufficient number of instruments to the students for performing the practical well, was a challenge for us.
- The grant under the DBT STAR college Scheme has helped us to purchase a multiple number of copies of the existing instruments to run the lab smoothly.

Equipment procured by the Department under the DBT STAR college Scheme.

Experimental setup Procured with only 5% of GST as our college is enlisted with SIRO certification



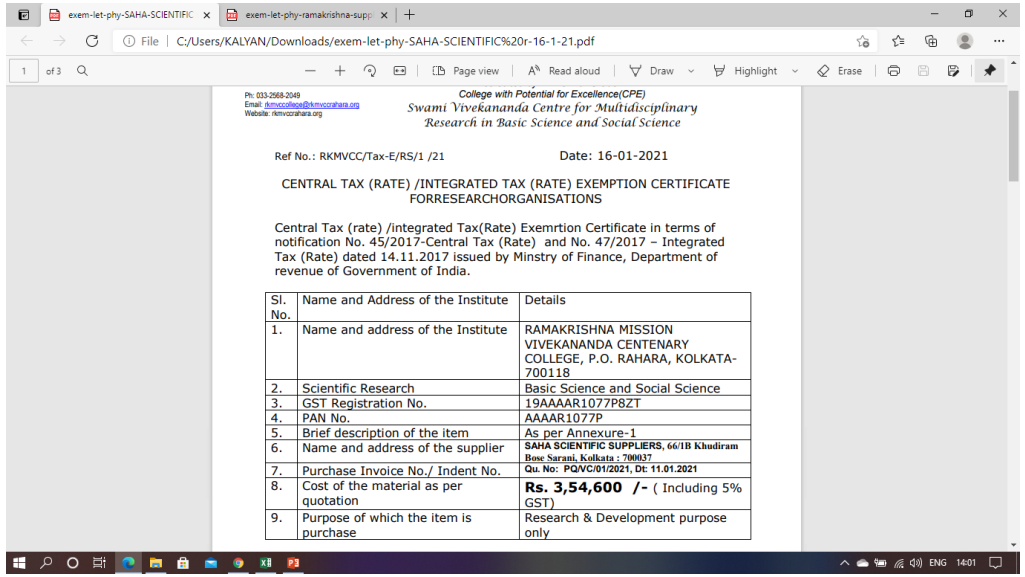
Central Tax (rate) /integrated Tax(Rate) Exemrtion Certificate in terms of notification No. 45/2017-Central Tax (Rate) and No. 47/2017 – Integrated Tax (Rate) dated 14.11.2017 issued by Minstry of Finance, Department of revenue of Government of India.

Sl. No.	Name and Address of the Institute	Details
1.	Name and address of the Institute	RAMAKRISHNA MISSION VIVEKANANDA CENTENARY COLLEGE, P.O. RAHARA, KOLKATA-700118
2.	Scientific Research	Basic Science and Social Science
3.	GST Registration No.	19AAAAR1077P8ZT
4.	PAN No.	AAAAR1077P
5.	Brief description of the item	As per Annexure-1
6.	Name and address of the supplier	**RAMKRISHNA LAB SUPPLIER, VILL.-Makrar , P.O. - Ramnarayanpur, P.S.- Tarakeswar , Dist.- Hooghly , Pin.- 712401**
7.	Purchase Invoice No./ Indent No.	**Qu. No: QU/RLS/019/20-21, Dt: 13-01-2021**
8.	Cost of the material as per quotation	**Rs. 603,427/-** (Including 5% GST)
9.	Purpose of which the item is purchase	Research & Development purpose only

Certified that the goods in respect of which exemption from Central Tax (Rate) / Integrated Tax (Rate) is claimed under the Notification is required for research purpose only.
Regards,

Yours sincerely

Number of equipment purchased this year is twenty four.



College with Potential for Excellence(CPE)
Swami Vivekananda Centre for Multidisciplinary Research in Basic Science and Social Science

Ref No.: RKMVCC/Tax-E/RS/1 /21 Date: 16-01-2021

CENTRAL TAX (RATE) /INTEGRATED TAX (RATE) EXEMPTION CERTIFICATE FORRESEARCHORGANISATIONS

Central Tax (rate) /integrated Tax(Rate) Exemrtion Certificate in terms of notification No. 45/2017-Central Tax (Rate) and No. 47/2017 – Integrated Tax (Rate) dated 14.11.2017 issued by Minstry of Finance, Department of revenue of Government of India.

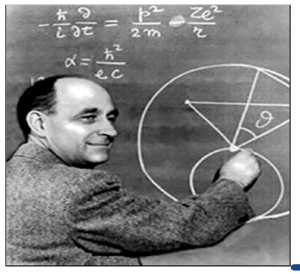
Sl. No.	Name and Address of the Institute	Details
1.	Name and address of the Institute	RAMAKRISHNA MISSION VIVEKANANDA CENTENARY COLLEGE, P.O. RAHARA, KOLKATA-700118
2.	Scientific Research	Basic Science and Social Science
3.	GST Registration No.	19AAAAR1077P8ZT
4.	PAN No.	AAAAR1077P
5.	Brief description of the item	As per Annexure-1
6.	Name and address of the supplier	**SAHA SCIENTIFIC SUPPLIERS, 66/1B Khudiram Bose Sarani, Kolkata : 700037**
7.	Purchase Invoice No./ Indent No.	**Qu. No: PQ/VC/01/2021, Dt: 11.01.2021**
8.	Cost of the material as per quotation	**Rs. 3,54,600 /-** (Including 5% GST)
9.	Purpose of which the item is purchase	Research & Development purpose only

List of Equipment procured by the Department under the DBT STAR college Scheme.

Serial No.	Experiments	No of Sets.
1.	Measurements of Planck's Constant	2
2.	Boiling point Determination with Platinum Resistance thermometer	1
3.	Determination of Dispersive Power of a material	1
4.	Susceptibility of paramagnetic solution	1
5.	Dielectric constant measurement	1
6.	Band Gap measurement by four probe method	1
7.	Hall coefficient measurement	1
8.	Frequency determination by Meldees method	1
9.	I-V characteristic of Tunnel Diode	1
10.	Electron Spin Resonance measurement	1

Interdisciplinary/ Interdepartmental projects executed by the students of the Department .

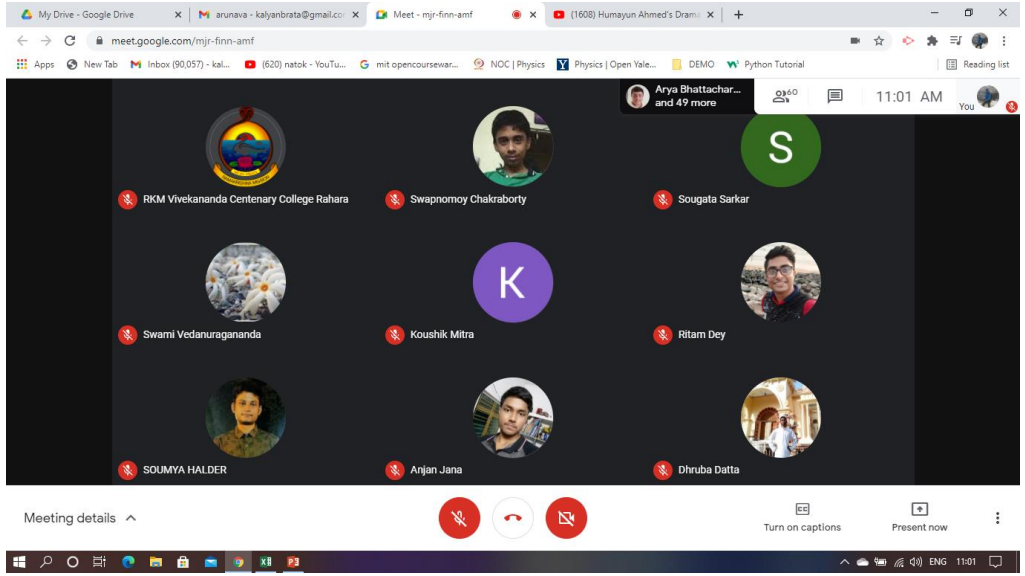
Programme held on 07/04/2021



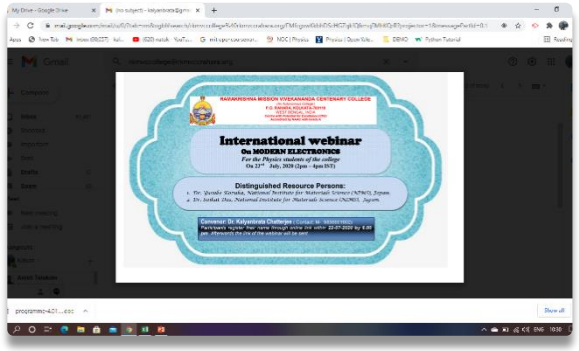
FERMI
PROBLEMS
or
THE ART OF ESTIMATION
by Dr. Kalyan Brata Chatterjee

Interdepartmental/interdisciplinary enrichment Program, Under DBT STAR college Scheme.

Enrichment Programme held on Google Meet taking students from Chemistry,Math,Botany,Zoology

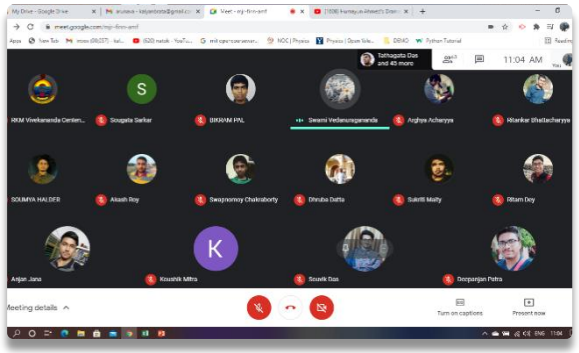


Workshops and Seminars organized by the Department under the Scheme.



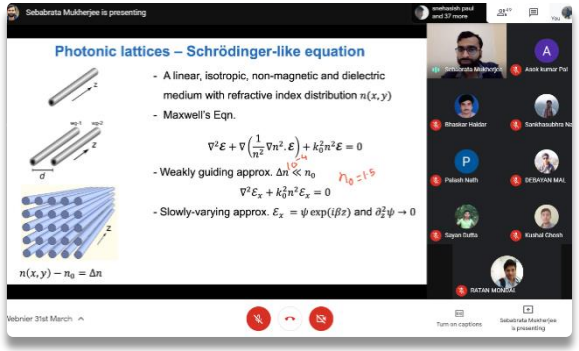
23/07/2020

webiner on " MODERN ELECTRONICS". This webinar has been designed to introduce all to a new dimension of frontier discoveries in material science for modern electronics. two distinguished speakers with prof. Yusuke Kozuka and Dr. Saikat Das from National institute for material science, Japan.



23/01/2021

National webinar On Modern Physics by Prof.Nilmani Mathur, TIFR.



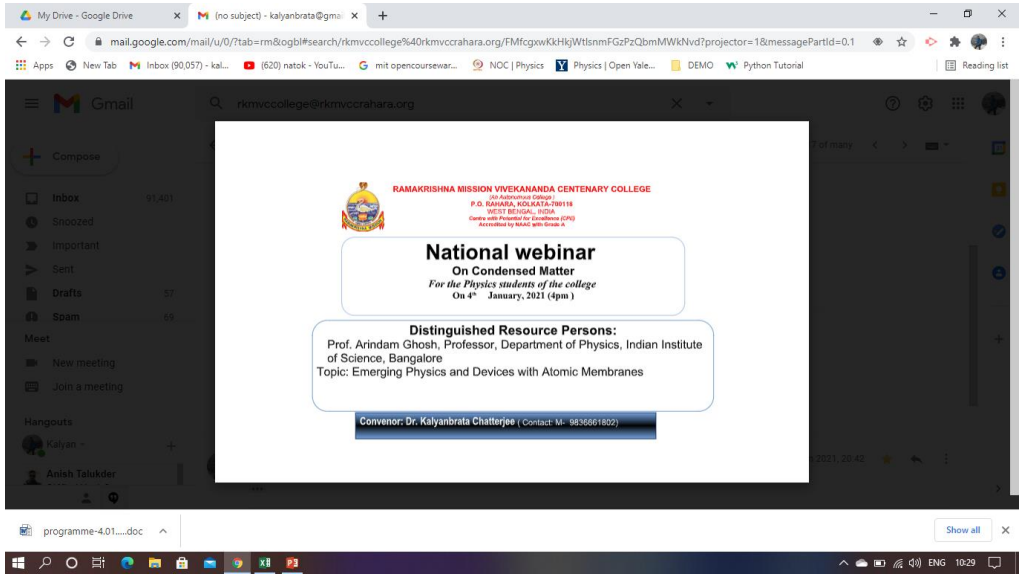
31/03/2021

Webnier on Topological Insulator

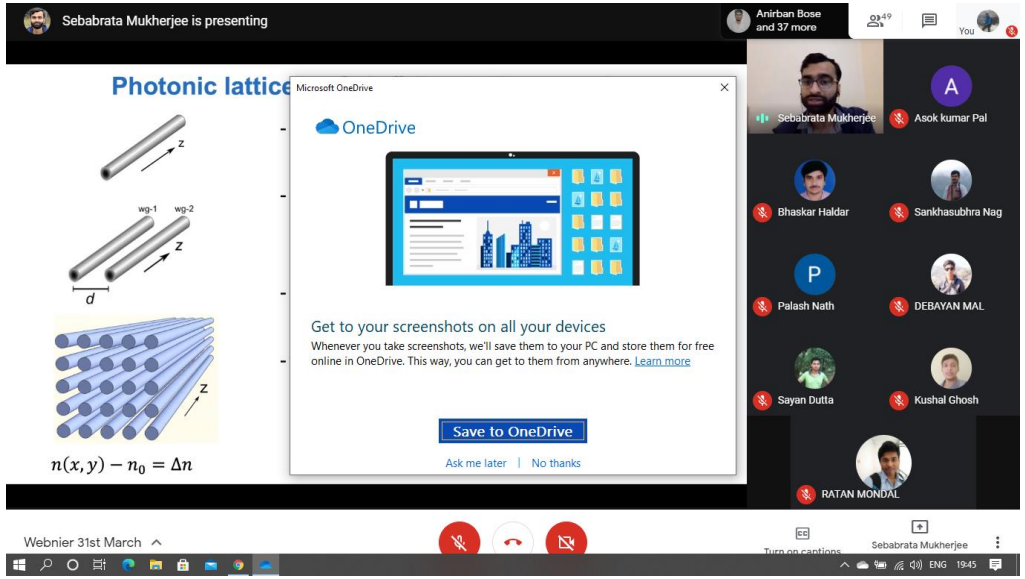
By Dr. Sebabrata Mukherjee

Workshops and Seminars organized by the Department under the Scheme.

Emerging Physics and Devices with atomic Membrenes,04/01/2021 by Prof. Arindam Ghosh,IISc,Bangalore

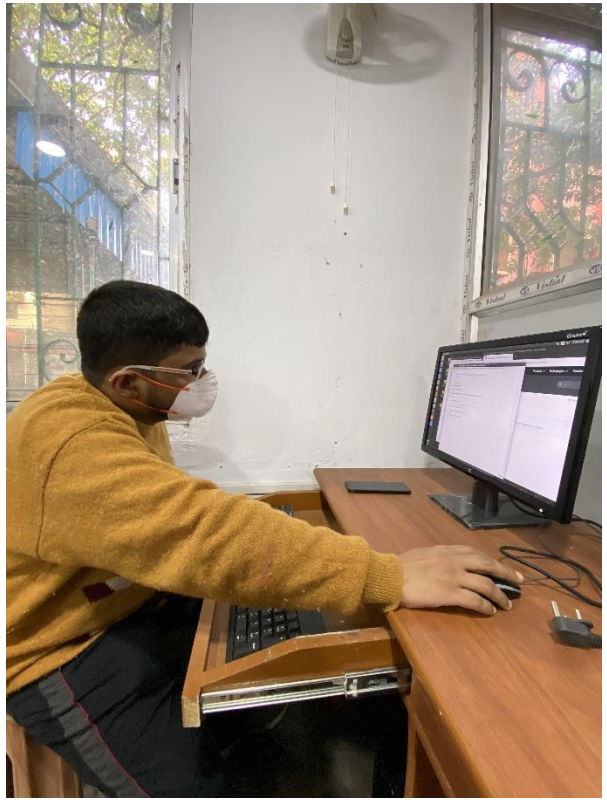


Webnier on Topological Insulator and implementation in optical lattice by Dr. Sebabrata Mukherjee,31/03/2021



Faculty improvement programmes initiated for the faculties.

- Mathamatica Softwear was purchased for the department and a one day workshop on mathematica was conducted on 27th January,2021.
- Prof. Atis Dipankar Chakraborty demonstrated some of the facts and features of Mathematica softwear to the other faculties of the Department.
- we have already approached the Computer Science Department of JU to conduct a workshop on Data Science and its Applications in our department and they have agreed to do so.

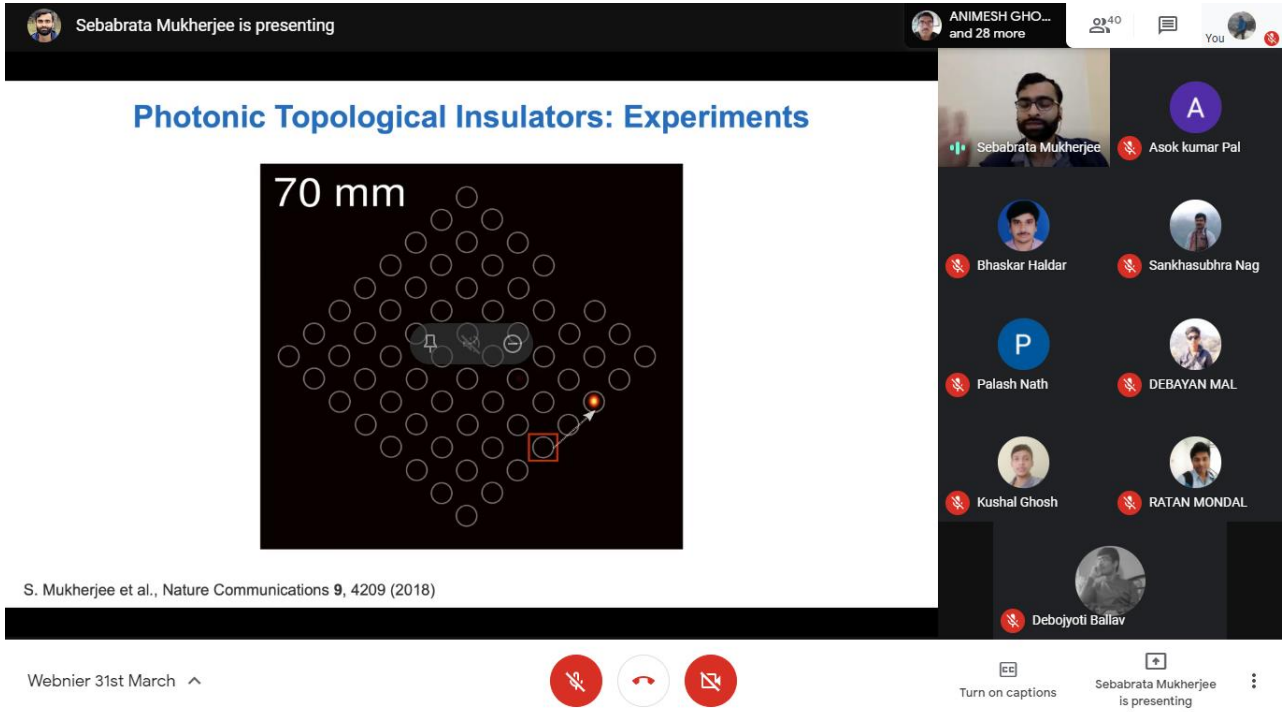


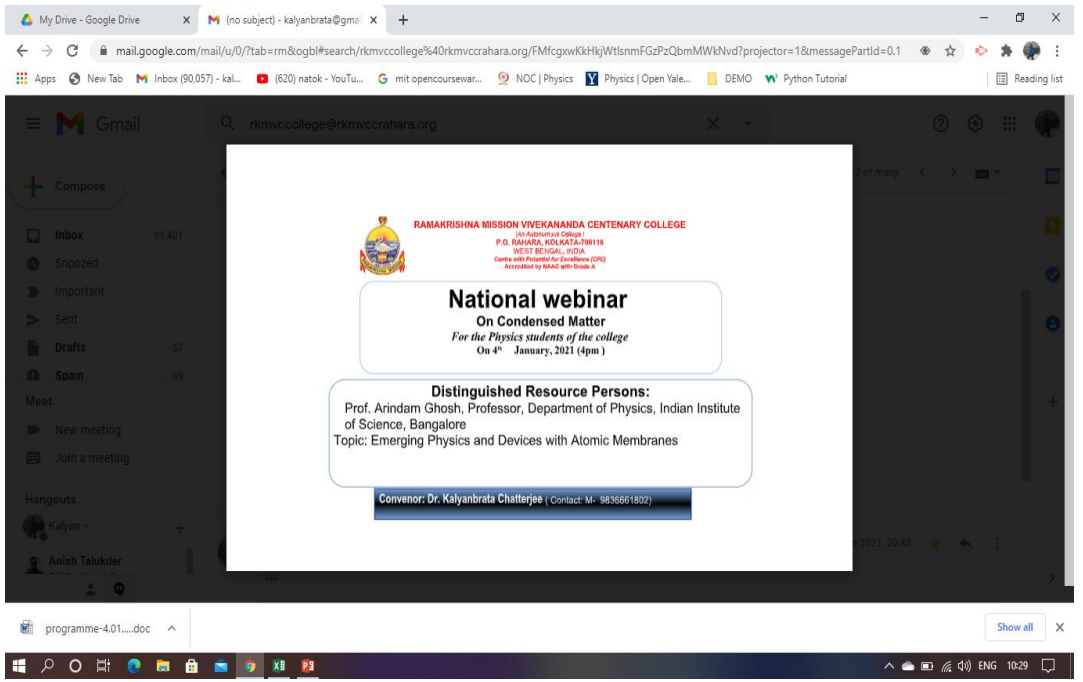
Visit to industry and Important Labs of National Eminence.

STATISTICAL INDIAN INSTITUTE
UNITY IN DIVERSITY

We have talked to the Authorities of the Prestigious institutes like Saha Institute of Nuclear Physics, IISER Kolkata, and ISI Kolkata to allow our students to visit their labs and various research instruments and they are happily ready to give us the scope once the pandemic situation is over.

Lectures delivered by Experts/Speakers in relevant areas of Physics.



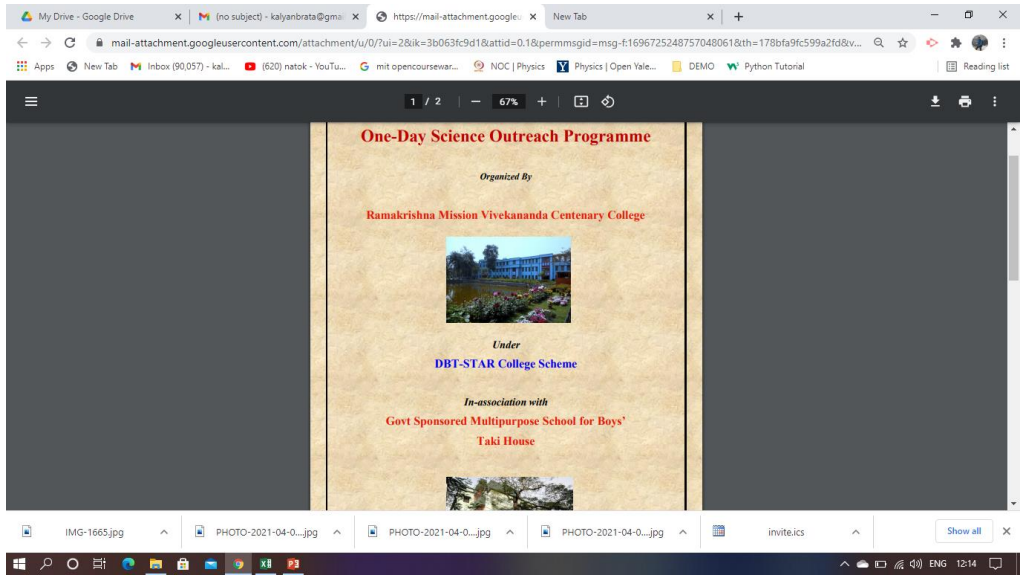


Lectures Delivered by Alumni of Physics Department, Dr. Sebabrata Mukherjee and Prof. Arindam Ghosh Was very much interactive and informative on some recent developments in physics and both was very Enriching from the point of view of the students as well as the Teachers.

Outreach Programme taken under the DBT Star College Scheme.

Interactive Talk Delivered on behalf of The Physics Department.

One Day Science Outreach Programme,09/04/2021



Training of Lab Manpower under DBT Star college Scheme.

Mr. Jagadish Samanta is presently working as the Lab Attendant in the Physics Department. A training Session was conducted by the department to give him an hands on experience.

Training session was conducted on 25/02/2021 by Prof. Asok Kr.Pal and Prof.Sankha Subhra Nag

Hands on training on electronic circuit design and maintenance of some delicate instruments was performed successfully.

Impact of the DBT STAR college Scheme on the Students Outgoing.

No.Of Students	Passing Year	Percentage of Pass out candidates	No. of Successful candidates in JAM(IIT,M.Sc. entrance)	Success in JEST/TIFR/IISC/HRI/ICTS	No.of Students Doing Higher Study(M.Sc.) in various central and State Universities	No. of Students Joined Different Jobs like CDS, Indian Army,others
51	2020	100%	21	6	18	6

Budget expenditure in the last financial year

physics (Non-Recurring)	
Item	Rs.
equip	354600
equip	603427
laptop	39060
external HDD	5355
Total=	1002442

physics (Recurring)	
Item	Rs.
software	85000
Main switches, electric wires, etc	111664
5kva ups battery	46400
projector	40436
books	23610
Total=	307110

Here is the division of the Non-Recurring and as well as recurring fund utilized by the Department of Physics for the financial year 2020-21.

- **Along with the lab instruments, we have also purchased a projector for our Theory Gallery, a 5KVa UPS battery for computers, and some important books needed for the students and Faculties both.**

- **Some renovation of electrical connections in our labs were also done with the recurring fund provided under the DBT STAR college Scheme.**
- **Also a Laptop and an external HDD was purchased from the non Recurring fund provided under the scheme, which will be utilised by the department in the future workshops, seminars, outreach programmes.**

Future Activities Planed.

Once the Pandemic Situation is over,

- We will conduct 2 Seminars and 1 Workshops in our Department for both students and faculties under the DBT STAR college Scheme in the coming year.
- We will Visit the industries and Labs with our students to give them the exposure of frontier research and developments in the various branches of Physics.
- In future at least 2 lab man power training will be performed once the situation comes to normal again.
- Students from 2 colleges and 2 schools will be invited to the out reach programme in the future.
- 2 to 3 minor projects as proposed in our original proposal for the students will be conducted if the situation becomes normal. Also we will try to implement and make our students aware of the IPR issues in Lab.
- Students from the department can borrow books for their own academic enrichment from the department which are already purchased under the scheme.

For helping us with the fund under the DBT STAR college scheme

to support us in going ahead