



### Course in Microprocessor.... From Page 1

Ten students from the First Year B. Sc. accompanied by Sir Yatin, Sir Ashish and Ma'am Ananya participated in the course. The first day started with the inaugural ceremony of the course where the participants were welcomed and objective and expectation of the course was explained. Principal of Gogate Jogalekar College Dr. Kamble and HOD in Physics, Dr. V. Sukhtankar also attended the inaugural function. The inaugural function was followed by a theory session by Dr. Belekar and a practical session after lunch.

During the entire workshop resource persons delivered a series of lectures followed by practical sessions. The practical session began by introducing microprocessor 8085 kit to all participants. The resource material of all the modules were provided, which made it easier to work on the microprocessor kit.



Students of our college getting a Hands-on-Experience on the Microprocessor Kit.

In the valedictory function participation certificates were distributed and resource persons thanked the students and faculty for their maximum participation in the course. Also, two of our students gave the vote of thanks praising and thanking our college Principal and the Professors for giving us the opportunity to attend the course which was very much encouraging and motivating aid for all the students. They also thanked the Principal and the faculty of the Department of Physics, Gogate-Jogalekar College for imbibing in us the knowledge of the course. It was really an unimaginable experience to all the participating students.

-Ninoshka Rodrigues (F.Y.B. Sc.)

### Internship..Contd. from Page 1

The projects which were successfully tested were filmed and uploaded on the D Art of Science Youtube Channel.

As a part of their internship Akash Kundaikar and Ninoshka Rodrigues attended the Science academies - 75<sup>th</sup> Refresher Course in Experimental Physics held at Goa University during 10<sup>th</sup> – 25<sup>th</sup> May 2016. The main aim of this course was to develop simple but effective experiments of low cost and thereby improve the laboratory programs in colleges and universities. Amrita Sarkar completed her internship under the guidance of Prof. Surajit Sengupta, Tata Institute of Fundamental Research, Hyderabad from 2<sup>nd</sup> May to 15<sup>th</sup> May 2016. She worked on the Models of Climate Change and Physics of Small Oscillations.



Akash Kundaikar and Ninoshka Rodrigues

These Internships increased their understanding and also allowed them to prepare themselves for challenging tasks in the future.

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#### Indemnity:

Opinions and news appearing herein are those of the Editor and not necessarily those of the Principal or the Management.

### Internship Report

An internship is an aspect of education that integrates study with planned and supervised work experience. This summer seven of our First Year B.Sc. Students completed their internships as part of their course.

Sandeep Reswal, Annapurna Meti and Vijay Pedasingh worked at the D Art of Science, Maina, Goa. They were given different projects to work on, which allowed them to apply basic knowledge of physics and acquainted them with the practical aspects of it. Sandeep worked on Wimhurst Machine and Radio Transmitter, Annapurna did her project on Working model of Air Engine and Vijay worked on Working Model of Mechanical Robot.



Annapurna Meti working on Air Engine at The D Art of Science.

Contd. On Page 4

### Basic Course in Microprocessor

A basic course in microprocessors was organized by the Department of Physics, Gogate – Jogalekar College, Ratnagiri, in association with the Department of Physics, Parvatibai Chowgule College (Autonomous), Margao from 25<sup>th</sup> April to 27<sup>th</sup> April 2016. The resource persons of the workshop were Dr. M. M. Belekar and Shri. V. V. Bhide from the Gogate Jogalekar College. The coordinator of the workshop was Shri Yatin Desai.



Faculty and Students of Gogate Jogalekar College and Parvatibai Chowgule College.

Contd. On Page 4

### Contents:

- Internship.....pg 1
- Course in Microprocessor ...pg 1
- News from the Department. pg1
- Results of T.Y.B.Sc..... pg 2
- New Faculty .....pg 2
- Neutrino Oscillation..... pg 3

### News from the department

- The Department of Physics organized talks on Basic of Nanotechnology by Dr. Sudhir Cherukulappurath, Goa University and Materials for Energy Harvesting and Storage by Dr. Bholanath Pahari, Goa University on August 13, 2016.
- Malati Dessai of Department of Physics attended workshop on The Journey from Kanad to Kalam organised by Vidnyan Parishad, Goa in association with Goa Science Centre, Panjim.

### Physics Students representing Science Faculty at Goa University.



**Regan, Sandeep and Siddharth**

Students of Department of Physics, Regan Rodrigues from Third Year B.Sc., Sandeep Reswal from Second Year B.Sc. And Siddharth Naik from F. Y B.Sc. Were elected as University Class Representative and subsequently Sandeep Reswal was also elected as University Faculty Representative of B.Sc. Section of Parvatibai Chowgule College (Autonomous) for the Academic Year 2016-17. The Department of Physics wishes them the best in their future endeavors.

### Results of T. Y. B.Sc. Physics for the year 2015-16

The result of the Department of Physics at the Third Year University examination is 100%. Out of seven students two students got Distinction and five students secured First Class. Pear Oliveira scored the highest among them by securing 74.3%. Congratulation to all and best wishes for their future career.

### Physics Quote

Everything is energy and that's all there is to it. Match the frequency of the reality you want and you cannot help but get that reality. It can be no other way. This is not philosophy. This is physics." – Albert Einstein

### New faculty of the Department



Hearty welcome to Mrs. Pallavi Dalvi who has joined the Department of Physics as an Assistant Professor in Physics. Mrs. Pallavi Dalvi completed her M. Phil. in Physics with specialization in Astrophysics at the School of Physical Sciences, Swami Ramanand Teerth Marathwada University, Nanded. Her work was aimed at understanding the Association of Interstellar Dust with Warm and X-ray Emitting gas in Star Forming Near by Early-type Galaxies.

### Spoken Tutorial

The Spoken Tutorial Project is about teaching and learning a particular FOSS (Free and Open Source Software) offered by the IIT Mumbai. This semester we will be organizing a training on LaTeX for the Third Year B.Sc. Physics students as a part of their Honors Programme. Students who will clear the exam will get a course passing certificates from IIT, Mumbai.

### Neutrino Oscillation Anomaly May Explain Why There Is Something Rather Than Nothing.

If our current understanding of the universe is correct, it should not even exist. The very fact that planets, stars and galaxies exist undercuts one of the most fundamental premises of particle physics — that the Big Bang, which created our universe 13.8 billion years ago, created equal amounts of matter and antimatter.

If this really happened, it begs the question — why, given that matter and antimatter particles annihilate each other when they collide, is there something rather than nothing in the universe? Why do you and I exist when the laws of physics, as we know them, seem to dictate that the cosmos should be nothing but a wasteland strewn with leftover energy? Obviously, as attested by the fact that we exist, there is a fundamental asymmetry between matter and antimatter. Either significantly more matter was created by the Big Bang, or there is a fundamental, as-of-yet-undiscovered asymmetry between matter particles and their antimatter counterparts — one that would have given the former an edge over the latter in the race for survival.

On Saturday, a team of researchers at the international T2K Collaboration in Japan announced that they had detected evidence of such matter-antimatter asymmetry. Produced by the decay of radioactive elements, these particles rarely, if ever, interact with matter, making them extremely hard to detect and study. Every second, billions of neutrinos travelling at nearly the speed of light pass through Earth.

Neutrinos, and their antimatter counterpart antineutrinos, exist in three types, or “flavors” — electron, muon and tau. Each of these flavors can change into the other, “oscillating” spontaneously as the particles travel over long distances.

At the T2K experiment, researchers looked for a difference between neutrinos and antineutrinos oscillations. Their findings announced at the International Conference on High Energy Physics in Chicago, suggest that there are — more muon neutrinos were found changing into electron neutrinos than muon antineutrinos changing into electron antineutrinos.

If confirmed with a greater level of certainty, this would point to a violation of charge-parity (CP) symmetry in neutrinos. CP symmetry tells us that a system remains unchanged even if two fundamental properties — charge and parity, which refers to a 180-degree flip in spatial configuration — are reversed. If a violation of CP symmetry is confirmed, it would not only hint at the existence of physics beyond the Standard Model — a theory of almost everything — it would also help us understand why the universe is completely devoid of antimatter.

Source: <http://www.ibtimes.com/neutrino-oscillation-anomaly-may-explain-why-there-something-rather-nothing-2398604>