ANNUAL REPORT OF EVENTS CONDUCTED BY

DJSCE IETE-SF IN THE ACADEMIC YEAR 2016-17

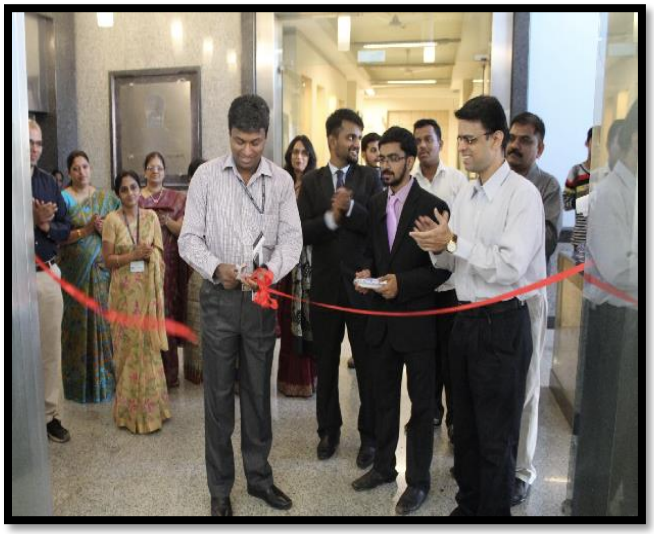
The following events had been conducted:

- **DJ SPARK 2016**
- **ETHICAL HACKING WORKSHOP**
- **INDUSTRIAL VISIT TO RELIANCE DAHANU THERMAL POWER STATION**
- **RASPBERRY PI WITH ANDROID AND PYTHON WORKSHOP**
- **MATLAB WORKSHOP**
- **TECH TALK BY NATIONAL AWARD WINNING SINGER, MR. MAHESH KALE**
- **DJ IGNITE- Technical Newsletter**
- **TechnIQ – Technical Quiz**
- **Mini Militia – Fun Event**

DJ SPARK 2016

DJ SPARK is a state level project competition that was organized by DJSCE IETE -SF on 10th April 2016. Students from all over Maharashtra like Pune, Nashik, Satara districts participated in the events. Students submit in their papers that went through a review process and only the best quality projects made it through the cutoff. Of all the papers submitted, under 40% of the projects crossed the cutoff and were selected for display and publication in the official DJ SPARK journal.

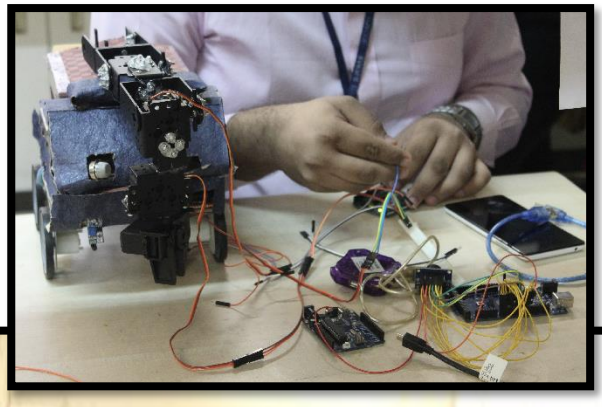
On the day of the event, the EXTC department was decorated with technical quotes and artistic charts along with technical attractions like a line following robot and a rotating billboard.



Eminent personalities from industry were invited to assess the projects based on innovativeness and applicability.

The winners of the day were awarded cash prizes of over Rs.10,000 that were handed to them by honourable Principal Sir, Dr.Hari Vasudevan.

There was a footfall of 300 and more people during the event, which turned event to a huge success. The overall enthusiasm of the students as we as the teachers made DJ SPARK 2016 a spectacular event paving the way for more and better events in the coming semester.



Ethical Hacking Workshop conducted by ICWiCOM in Collaboration with IETE-SF

Introduction

Engineers can take preventive security practices to the next level by learning how to hack. As opposed to malicious "black hat" hacking, ethical "white hat" hacking (also called penetration testing) involves using computer hacking skills to identify network security vulnerabilities and patch security holes before anyone can misuse them.

Objectives

The overall goal of the workshop was to introduce participants to

- The importance of ethical hacking tools
- Understanding the ethical hacking process
- Implementing ethical hacking tools

Hacking system provides the high securities to the customer's methodologies and techniques to yield high qualities of infrastructures. The ethical hacking system includes some of the service like:

- Application Testing
- War Dialing
- Network Testing
- Wireless Security
- System Hardening

Attendance

Number of participants: 69 .

Workshop Sessions

The following topics have been introduced to the participants during the Day 1
Participants of the workshop were introduced about the necessary precautions to be taken before performing any kind of hacking operations. For e.g. changing the IP address of your device .

1. Wi-Fi Hacking
With Kali Linux, hacking becomes much easier since you have all the tools (more than 300 pre-installed tools) you are probably ever gonna need. Others can be downloaded easily.
Tools like Wireshark, Reaver ,Pixiewps and Aircrack-ng were introduced and explained.

2.Quick Crypto
Steganography is the science of writing hidden messages in such a way that no one apart from the sender and intended recipient even realizes there is a hidden message.
The QuickCrypto steganography function allows carrier files to be photographs, drawings, images (.jpg, .gif, .bmp file types) and sounds (.wav and .mp3 file types). Any type of file can be hidden within these types of carrier files. Files and text to be hidden can easily be encrypted prior to hiding if required.

The following topics have been introduced to the participants during the Day 2

1.Keyboard Capturing
Keystroke logging, often referred to as keylogging is the action of recording (logging) the keys struck on a keyboard, typically covertly, so that the person using the keyboard is unaware that their actions are being monitored.

2.Phising Page
Phishing is typically carried out by email spoofing or instant messaging and it often directs users to enter personal information at a fake website, the look and feel of which are almost identical to the legitimate one.

3.Caller ID Spoofing
CrazyCall is the most popular website used for call spoofing. This website lets users make calls from any number they want. So, you can make prank calls with this. It also lets users change the voice to be anonymous while calling and you can also call from fake caller ID.

With the help of these tools participants performed exciting tasks such as changing the Wi-Fi password, cracking Wi-Fi password, hiding information in picture, mobile hacking, creating fake web pages and applications etc.

Dahanu Thermal Power Station (DTPS)

Introduction

Dahanu Thermal Power Station or **Reliance Dahanu Thermal Power Station** (**DTPS**) is a coal based thermal power plant located at coastal Dahanu town in Palghar district . The power plant is operated by Reliance Infrastructure.

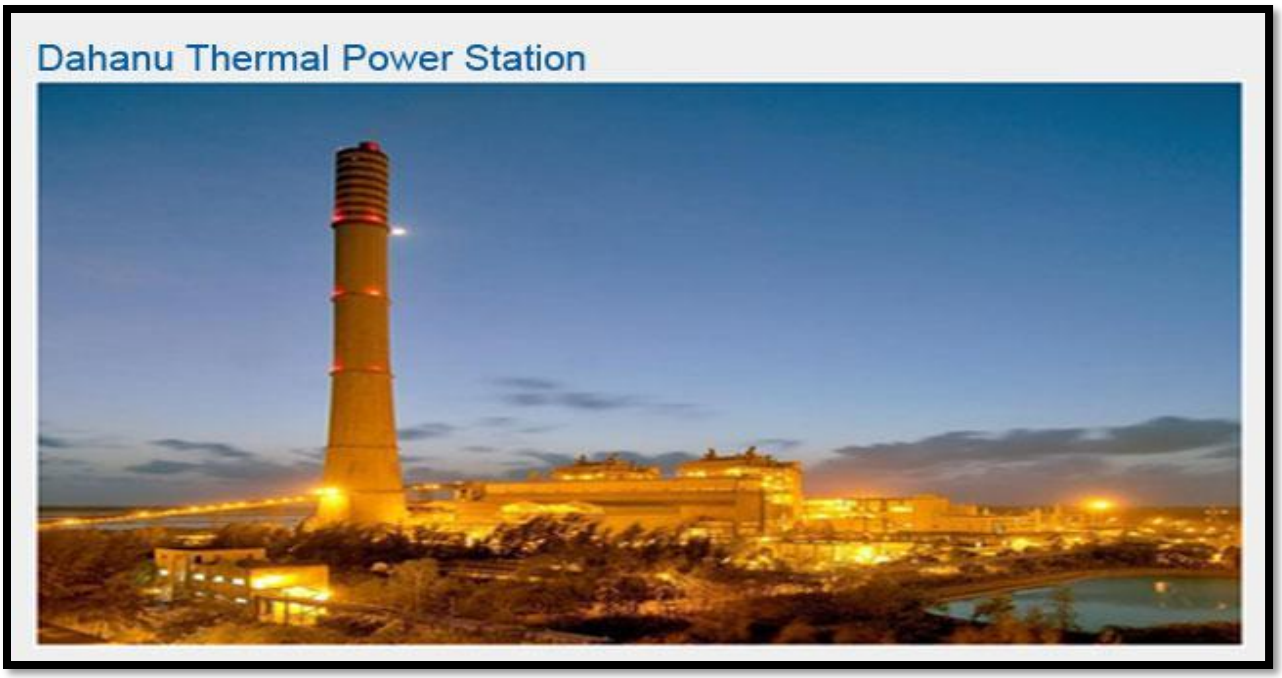
It has an installed capacity of **500 MW** (2x250 MW) with 2 units of 250MW.

Each unit consists of one Boiler, one Turbine and one Process Control Room (PCR).

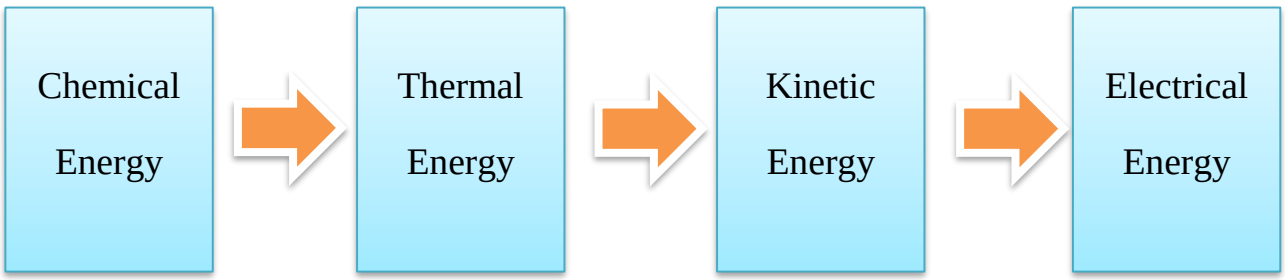
The Industrial Visit was conducted on the 24th of January, 2017 by the IETE committee of The Department of Electronics and Telecommunication. More than 70 people were part of this learning process.

Foremost parts of the Plant are:-

1. Coal Handling Plant
2. DM Plant
3. Boiler
4. Super Heater
5. Turbine
6. Condenser
7. Cooling Towers
8. Electrostatic Precipitator
9. Chimney
10. Generator
11. Control Room



Principle:-



1st Stage:

- The first conversion of energy takes place in the boiler.
- Coal is burnt in the boiler furnace to produce heat.

2nd Stage:

- Second stage is the thermodynamic process.
- The heat from combustion of the coal boils water in the boiler to produce steam.
- The steam is then piped to a turbine.
- The high pressure steam creates impulse and thrust because of which turbine starts rotating.
- The steam is then condensed and pumped back into the boiler to repeat the cycle.

3rd Stage:

- In the third stage, rotation of the turbine rotates the generator rotor to produce electricity.

Coal Handling Plant

- Coal handling plant consists of Waggon tippler, Stack yard, Coal mill, Magnetic separator, Belt conveyor system, etc.
- The plant utilise a mix of Indian washed coal and imported coal as fuel. The general blending ratio is **60:40.** The indigenous fuel is received from South Eastern Coalfields Limited (SECL) at Korba situated in Bilaspur, **Madhya Pradesh**.

- DTPS has Washeries at korba, Hence already washed raw coal is transported from coal mines to DTPS by Railway cars.
- Every day **3000 tons** of coal is used for Power Generation by each unit.
- Generally, 2-3 racks of Coal are transported every day.
- The Railway cars are unloaded and coupling is removed near **Waggon Tippler.** Chain blocks take the car ahead after the coupling is removed.
- A **weighing room** is used to monitor the weight of coal before tipping the waggon. **Load cells** are attached on the base of waggon to measure the weight. Generally, weight of each block of car is around **60 tons.**
- Waggon tippler is used for emptying the loaded waggons by tipping it. Normal water is used to suppress the **dust formed in this process**.
- In latest plants, **Platform tippler** is used instead of waggon tippler to avoid the drawbacks such as maintenance and loss of coal.
- Coal is transported to **stack yard** by underground belt conveyor system. **Magnetic separators** are attached in the way to remove large coal blocks in case there exists.
- Coal is stored in the stack yard by forming piles of coal. **In summer, the bottom pile of coal burns due to heat which causes major loss of coal.**
- **Stacker and Reclaimer system** is used in coal handling plant.
- Coal is transported to coal mill by belt conveyor system and stored in bunkers. These **loops are 100% automatic**
- Coal mill has a **round shape ball mill**, Coal is crushed between the metal balls.

Ash Disposal

Ash utilization is more than 100 percent and also preparing ash bricks to help local people by providing them bricks for their construction work

Four ash ponds for disposal of ash slurry.

Dry Fly Ash collection System for maximising ash utilization as per MOEF notifications.

The finer ash particles that cannot be made into bricks, are used to making cement in silo plants.

Chimney

Sulphur gas is also separated. Scrubbing process is used to dissolve the sulphur, which in turn in thrown away. If the chimney temperature falls below 120 degree celsius, the phenomenon of sulphur raining is observed. Out of the chimney, the filtered air is given out which consists of many gases like CO2 and N2.

At Level 0m, there were 3 turbines in totality: 2 working at a time and 1 on stand by.

The water moves from the Boiler Feed Pump to the Drum.

Coolers are provided at level. DMW cooler is used to avoid corrosion in the machine parts.

At Level 75m, the turbines and the generators are present. The water passes from high pressure turbine to Intermediate turbine to Low pressure turbines. The exhaust is present between the intermediate and low level turbines.

At the low pressure turbines, condensed water is collected and fed to the drum where 50% consists of water at lower level and 50% consists of steam at higher level.

Heaters are provided in the middle to increase efficiency of the turbines.

At the end, the turbines generate energy which is converted to electrical energy in the form of electricity, which is supplied throughout the island city of Mumbai.

The Industrial Visit was a fun and learning experience where we were exposed to how things work in the Industry. Most importantly, our theoretical knowledge was seen in practice.

Reviews and testimonials :

It has always been so easy.. Feeling hot , stood up and switched on the fan Never thought about the series of events that led to the outcome! The visit to Reliance thermal power plant surely gave a glimpse of how much hard work it takes to generate electricity which we simply use by clicking the switches at homes.

-Nigam Shah, Second year, Extc

The best part about the visit was the way the important sectors of the plant were covered by the informant.

How the coal is brought from mines from everywhere in India and around the world , how it's processed and travelled and given to the respective sectors. The visit not only gave information about electricity , but also about how deep human brains can operate and generate electricity for the entire city!

-Drishti Parekh, Second year, Extc.

'The Only Source Of Knlowdge Is Experience'. This industrial visit has proved that practically experiencing what we learn theoretically gets the concept much easier to understand and learn.

-Eashna Jain, Second year, Extc

Technique of magnetic separation to purify coal is 8th grade physics but after going to Reliance industries, I saw its actual application. Tons of coal and acres of land with two 250 MW plants. If you want to know the difference between what you see and what you learn then that is what an IV can make you understand. It is crystal clear understanding and a must experience stuff. All credits to IETE committee for organizing such a wonderful IV and make my concepts crystal clear.

-Akash Mehta, Second year, Extc.

Report of Raspberry pi with Python and Android workshop condcted by ICWiCOM along with IETE-SF on 12th Feb, 5th March, 12th March.

Day1: Python

The trainer of this workshop taught the students right from the scratch of Python programming, so that they could get a genuine flow of the commands used in Python. The syntax of this language was clean and length of the code was relatively short. Students learnt about flow controls, data types and functions used in Python. They enjoyed working in Python because it allowed them to think about the problem rather than focusing on the syntax.

Day 2: Android

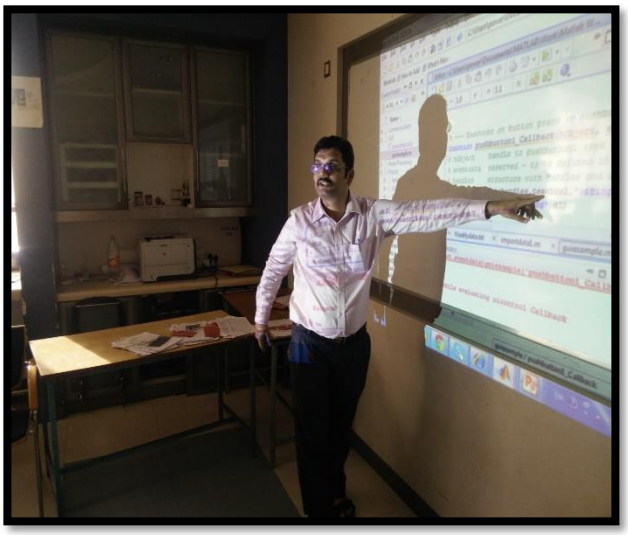
Students found this workshop very appealing, as they learnt how to use Android Studio for creating Android applications. The trainer explained the basics of Android Studio and the methods for creating an application. Features like toasts and Intents were taught to the students. At the end of the workshop, the students could successfully build an application on a temperature converter and a basic calculator using Android Studio

Day 3: Raspberry Pi

This was the most exciting workshop of all. This workshop highlighted the concept of IoT(Internet of Things). The students leant about the configuration of the Raspberry Pi Model and could differentiate individual components on the PCB model. They learnt to use PuTTy as an emulator to access the components of the model. At the end of this workshop, the students could remotely switch on/off a light bulb through a server which was linked to the Raspberry Pi Model.

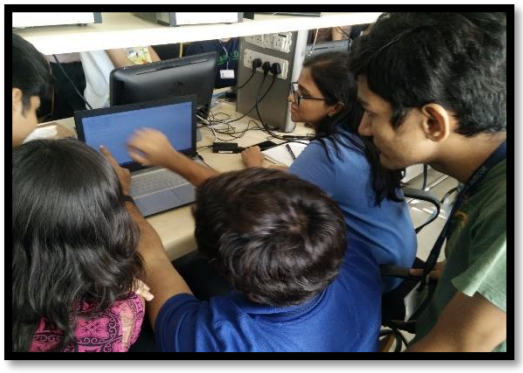
Report of MATLAB hands on Training conducted by IETE-SF on 12th March 2017.

The trainer of the session Prof. Venkataraman taught the students about the language right from the basic layouts, commands, predefined library functions, to the structure data types and function handles. The usage of matrix manipulations, mathematical applications and creation of programming user interfaces made it very clear about the product's versatility in various backgrounds.



The second half of the session was the most exciting and the highlight of the day. Students learnt about the other aspects supported by MATLAB like inbuilt text, audio and video file extensions and graphic user interface programming like Simulink and guide(GUI). Students had hands on practice of various tool boxes of Image processing, like face detection and signal processing, to play a song on MATLAB.

The interactive session at the end cleared all doubts of the students about the software. The trainer's friendly attitude and impeccable presentation gave the training credibility. In all, the lecture helped students understand the power and extensiveness of MATLAB oftware that would help them in their academics and future projects.



TECH TALK CONDUCTED BY NATIONAL AWARD WINNING SINGER, MR. MAHESH KALE

Mahesh Kale, not his presence or his songs, it was his words that won over our hearts.

He was born in a middle class family in Pune.

He was exposed to music at a very young age as his mom, Smt. Meenal Kale had Masters in Indian Classical Music and his dad was also a very big fan of Classical music. As a kid he spent his mornings listening to AM music .

Mahesh gave his first solo performance at the age of 3 at Gondavale, with the rendition of a devotional song he mesmerized an audience of over 5000.

Mahesh has performed in over 1000 concerts of Indian Classical and Semi-Classical Vocal in India, US, UAE, UK and Southeast Asia.

He hold the "National Film Award for Best Playback Singer (Male)" for the film Katyar Kaljat Ghusali at 63rd National Film Awards 2015

In today's event we came across an honest and simple man.

So, here are the #Quotes from the event!

1) You can't just keep impressing people throughout your life. You need to be happy from within! That is what matters!

2) A teacher teaches you methods and ways to tackle a subject or problem. A guru gives you the instinct of tackling it.

3) Not everyone needs a Mercedes to feel heavenly. One can simply eat a mango and find his heaven!

4) Ask one stupid question today and be wise for the rest of your life rather than not asking it and being stupid for entire life.

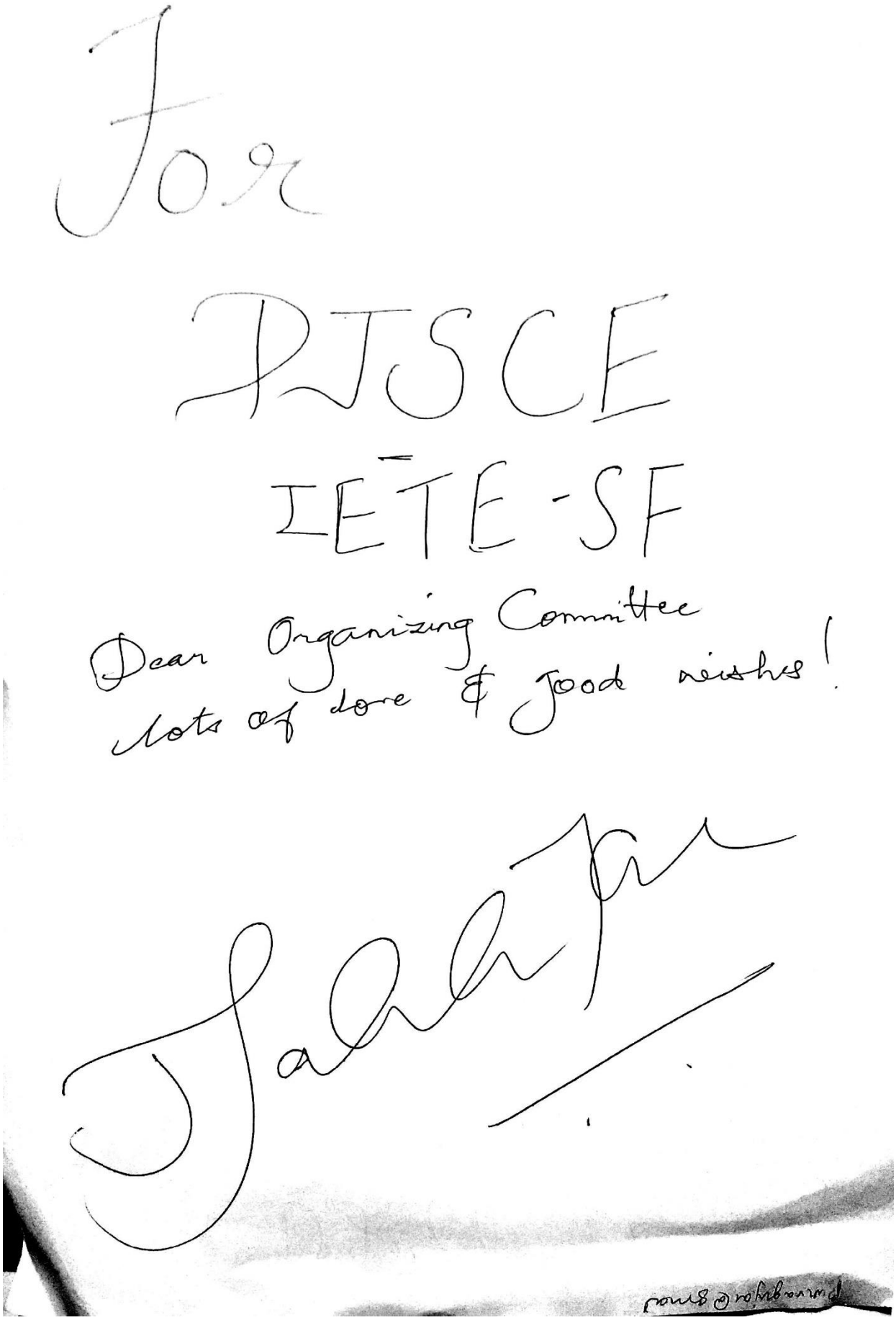
5) There are streams of bits, bytes, data, threads... And at the end of it all, there is the God particle. Similarly, there is all the chaos, disorder, blah blah and at the end, there is that Wow moment... That is the similarity between music and engineering.

6) The toughest thing is to keep it simple and beautiful, and one should never let that aim go out of mind.

7) Hobby is something like a pet. You just pat it and love it and it loves you back 100 times more.

He believes in creating beauty out of music and his mantra is to make as many mistakes as we can but never to repeat them. We should follow his footsteps.

An autograph for the organizing committee from the legend himself!



DJ IGNITE – Technical Newsletter by IETE

DJ IETE-SF has started its official newsletter to impart technical knowledge to the student by the way of fun teasers, technical facts as well as technical articles.

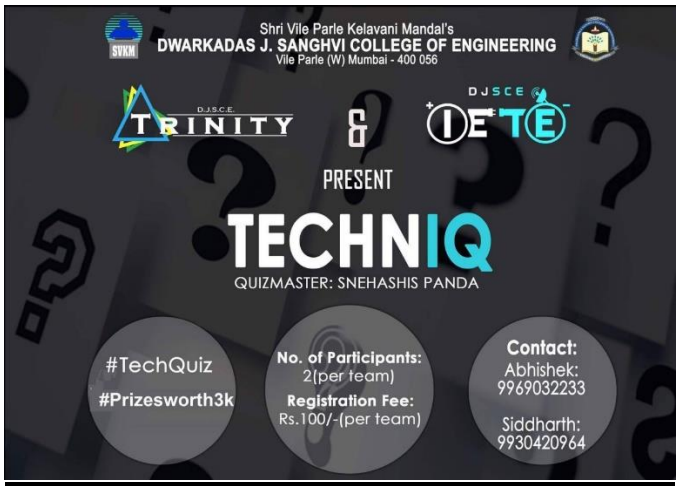
The newsletter is an exciting endeavor that not only makes the students interested in technology but also makes them aware about the developments in science in the outside world. There are articles about various topics such as green technology in order to supplant nature's destruction and make the world a safer place for the future generation. Technical poems have also been added.

There has been an overwhelming amount of response from the students as large number of entries kept pooling in.

This is a significant step taken by the IETE-SF committee to involve student participation in elucidating fellow students about technological advancements and inducing further curiosity in science.

TechnIQ – Official Technical Quiz

In collaboration with DJ TRINITY



IETE-SF in collaboration with the college festival DJ TRINITY, organized a fun technical quiz to test the technical acumen of the students.

Students came in huge numbers to stand a chance at winning exciting prizes. It was a delightful time where students beat the clock and pounced at questions to earn invaluable points making their way to the top of the charts.

The enthusiasm of the participants as well as the organizers truly made the event an incredible success.

Mini Militia tournament in collaboration with DJ TRINITY

IETE-SF organized a fun event for the benefit of the students. It was a multiplayer game where students had to virtually shoot one another to earn digital points. This event worked as a stress-buster and was enjoyed by a majority of the students.