National Institute of Technology Karnataka - Surathkal

The Institution of Engineers, NITK

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL, MANGALORE - 575025

The Institution Of Engineers, NITK Chapter

https://ie.nitk.ac.in/

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Report for Activities from May to December 2021

External Events:

Summer Mentorship Program:

Date:
May to June 2021

Description:
Summer Mentorship Programmes (SMPs) are an important aspect of our club and are held every year over the summer, from May to June. This programme gives the students from NITK an opportunity to enhance their knowledge and/or skills in a wide range of topics over the course of 1-2 months. SMPs are typically conducted by the members of IE NITK, particularly the pre-final year students. This year, we witnessed a large number of participants, around 240+ students from both the sophomore as well as pre-final years of B.Tech.

The SMP topics offered this year were:

1) Capital SIG
   a) Introduction to Capital Markets
   b) Corporate Financial Analysis

2) Code SIG
   a) Web Development using Django
   b) Operating Systems
   c) Information Security
   d) Graph Algorithms
   e) Competitive programming
   f) Competing in Kaggle using Machine Learning

3) Gadget SIG
   a) Speech Emotion Recognition using Python
   b) PCB Design
   c) Foundation of Microprocessors and Embedded Systems
   d) Emotion Recognition of famous movie scenes using Image Processing

    e) Driver drowsiness detection using Deep Learning

4) Garage SIG
   a) Race Car Dynamics
   b) Machine Learning for Classifying Mechanical Properties
   c) Design and Analysis of Aircraft Wing
   d) Additive manufacturing using Fusion 360

5) Robotics SIG
   a) Robot Modelling with Fusion 360
   b) Pedestrian Counting & Social Distancing using Object detection and tracking
   c) Motion Planning Algorithms Using Python

6) Script SIG
   a) The Subtle Art of Creativity
   b) Academic Writing for Dummies

7) Tectonic SIG
   a) QUANTarc - Mapping The World with QGIS
   b) Architecture Essentials (AutoCAD and Revit)

The SMPs were carried out in two phases this year, namely, the "Beginner" and "Advanced" tracks. Sessions were carried out in online mode by the SMP mentors, following which a few assignments were given to the participants to practice the concepts learnt in these sessions. Upon completion of all the assignments, participants were awarded certificates based on the track of SMP they had successfully finished.

Quar-hunt-tine:

Date:
15th May 2021

Description:
A national level online treasure hunt hosted in collaboration with ASCE.

Research and Internship Opportunities in Robotics:

Date:
22nd May 2021

Description:
IE robotics assembled a panel of NITK alumni from various prestigious institutions and companies to have an interactive talk on different career opportunities/paths in the field of robotics. Every panel member explained in detail what they were doing, how they approached, and the difficulties experienced by them. In the end, they answered the questions and queries of the attendees.
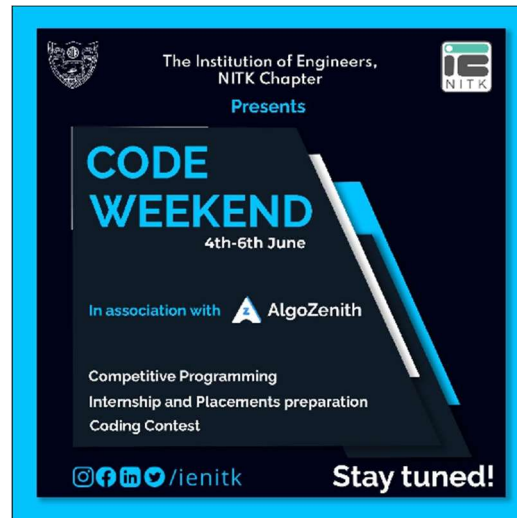
Code Weekend- Collab with Algozenith:

Date:

4th to 6th June 2021

Description:

A series of three events where IE has collaborated with Algozenith, a start up for coding courses, which included Talks on competitive programming and Guidance sessions on internships and placements preparations followed by a Coding Contest.

a. **Competitive programming:** Vivek Gupta (Founder of Algozenith) shares his insights about the topic and how to start with competitive programming. (Attendees - 80)
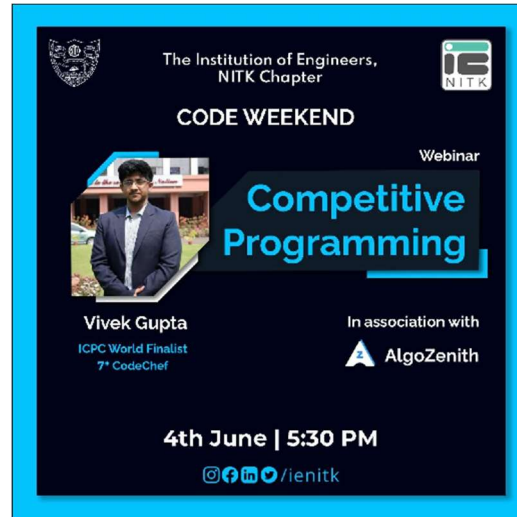
b. **Internship and Placement:** Vivek Gupta (Founder of Algozenith) shares his insights about the topic and how to start with preparations which included the important topics and level of questions to be expected. (Attendees - 75)
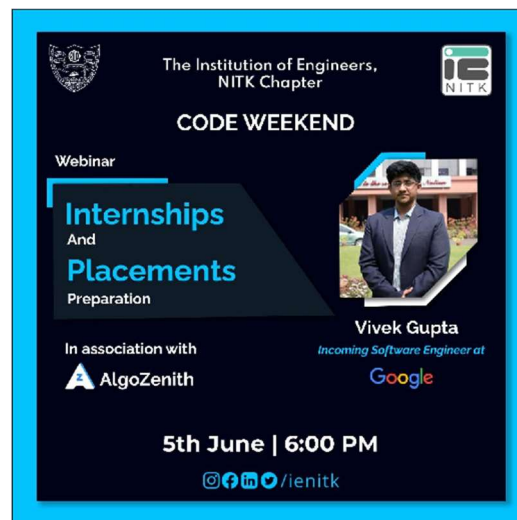
c. **Coding contests:** We have also organized a contest open for all. (Attendees - 50)

Pride Month Celebration:

Date:

For the month of June

Description:

a. **Club Logo Change:** To show our support to the LGBTQ+ community, IE NITK modified its logo to incorporate the colors of pride (vibgyor) and showcased the same across all its social media platforms, including Instagram, Twitter, Facebook, and LinkedIn.

b. **"Let's get one thing straight, I'm not":** To raise awareness about different gender identities and the importance of addressing people with their preferred pronouns and salutations, IE NITK released a series of posts to celebrate the many aspects of the LGBTQ+ community.
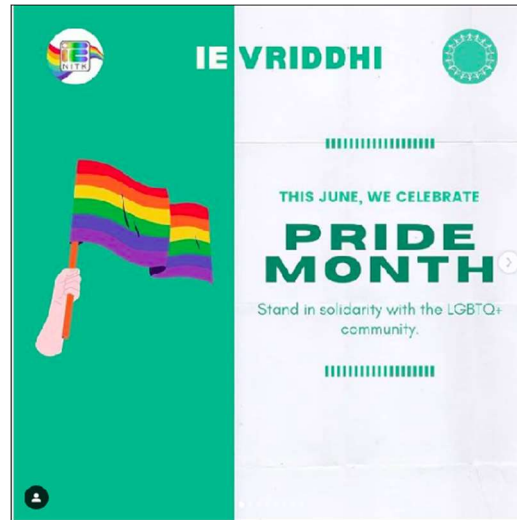
King of the Hills:

Date:

26th June 2021 & 28th June 2021

Description:

The 10th edition of King of the Hills (KoTH) was a 2-days, much-awaited event covered on the 26th & 28th of June for the first year with a lot more fun and exciting challenges. The event covered technical quizzes, problem-solving-oriented puzzles to fun games, and more. This year's turnout was excellent, with about 55 teams (200+ individuals) participating and giving various positive feedbacks after the event.

Samwad:

Date:

25th July 2021

Description:

SAMWAD is a special talk series where professionals with high industrial experience share their thoughts and opinions about a particular industrial topic. Gadget had two speakers for the first set of the Samwad series. With a good amount of participation from enthusiasts from around the institute, Samwad was a great medium for people to interact and get their doubts cleared by speakers who addressed them very well.

Speakers of the first set of Samwad:

- Pavan Manjunath
  Topic: An industrial approach to VLSI Design
- Ashwinkumar Kupsad
  Topic: Embedded Software Development in Electric Vehicle (EV)

Defuse:

Date:

16th July 2021 & 30th July 2021

Description:

Defuse is Gadget's exclusive platform for all the Gadget members to showcase and discuss their topics of interests emerging in the field of Artificial Intelligence, Machine Learning, Robotics and traditional electronics. With the very first Defuse session commencing on 16 July, 2021 on the MS Teams platform, Gadget has conducted two immensely engaging discussion sessions and will continue with increased frequency.

Defuse sessions conducted so far:

- Microsoft Hololens, Mixed Reality Technology - 16 July 2021.
- Robotic Origami - 30 July 2021.

Ask IE Anything:

Date:
9th July 2021, 11th July 2021 & 12th July 2021

Description:
A series of three events where IE tries to answer questions from the participants after sharing some experience about the topic.

a. **Cracking Google:** IE members who cracked google for placements and internship helped participants to share their way of preparation and other experience. (Attendees - 125)

b. **Gsoc Primer:** IE members who all cracked Google summer of Code programme share their valuable knowledge about how to apply and get selected. (Attendees -75)

c. **ICPC 101:** IE members who secured good ranks in ICPC Coding competition in regional and prelims levels share their way of preparation like other coding contests, platforms etc. (Attendees - 65)

Recruitment:

Description: - Like every year we had recruitments this year, to bring in the fresh batch of students. Our recruitment process contained 4 rounds in total.

- Written Round: - The written round consisted of 2 parts: aptitude round which was common for all the SIG's and the coding round which was SIG specific. It was conducted on 26th September.
- Technical Round 1:- It was conducted on 3rd and 4th October
- Technical Round 2:- It was conducted on 6th and 7th October
- HR Round: - HR 1 was conducted on 12th October and HR 2 was conducted for a few candidates. It was conducted on 14th December.

Finally, a total of 57 people were selected at the end.

Enigma:

Date:

24th Jan 2022 & 25th Jan 2022

Description:
IE's another flagship event where Freshers get to experiment in different fields of engineering and arts. A very diverse event where each SIG conducts stimulating competitions ranging from coding challenges to implementing marketing strategies.

Internal Events:

Interview Prep:

We have been constantly focusing on the internal growth of our members. We have conducted regular Knowledge Exchange Programs for the members of our club. We had conducted mock interviews and placement/interview tests for everyone in the club.

Talks by Alumni:

We also had talks from alumni explaining the various components of CTC inclusive of tax brackets. Other alumni of our club took a session explaining how to write Sops for a research internship.

Knowledge Exchange Programs:

After recruitments, we have been working on teaching the new recruits. We have conducted sessions to teach the basics like GIT from Code, VLSI and Arduino from Gadget, Group Discussions on various by Garage. Other sessions we have conducted are on the financial crisis of 2008 and how psychology affects marketing, by Capital.

SIG Games:

To increase inter-SIG bonding between the members, we conducted internal SIG games. The games were spread out for a period of 4 days and at the end of each day, the SIG standings were released.

Competitive Programming Contest and doubt sessions:

Biweekly CP contest is held for IE coding enthusiasts & doubt sessions after every contest to help them clear their doubts and prepare them for placements' coding rounds.

IE Brown Bag:

IE's Brown Bag is series of session to discuss and share any interesting technical ideas and theory. It could be anything - ranging from simple tips/tricks in Windows to a detailed discussion on Cloud Computing after watching a relevant video. These sessions are meant for open discussions and knowledge sharing.

1. **Name:** Writing Clean Code
   Date: December 23, 2021

2. **Name:** NFTs
   Date: January 22, 2022

3. **Name:** Web dev frameworks
   Date: February 2, 2022

Secret Santa:

To increase inter-SIG bonding between the members, we conducted Secret Santa. It's an event where everyone participating is randomly assigned to one another, and each person anonymously gives and receives a gift.

SOP (Statement of Purpose) session:

Session on writing SOPs (Statement of Purpose). This was a session to let IE members know the tips, tricks and secrets behind writing a good SOP and getting dream foreign internships and master's admits.

GSoC and MLH Fellowship:

A session conducted to help members start contributing to open-source projects. This session is followed by mentorship provided by previous GSoCers in IE to help others contribute and participate in open-source opportunities like GSoC, MLH, etc.

IE Blog:

IE Blog is a weekly series released for the technical enrichment of the members of the club along with the entire college. The range of topics are varied and spread across various domains. A list of blogs published are provided below. They can be read at https://ie.nitk.ac.in/blog.

1. **Name:** A Tryst with Branch Change
   Date: 02/07/2021
   Description: So what exactly is this Branch Change? It is a "phenomenon".

2. **Name:** Fly
   Date: 02/07/2021
   Description: Fall in love, my friend, fall in love once again. A love untainted, a love with nothing to gain.

3. **Name:** Bloom Filters - Probabilistic Data Structure
   Date: 09/07/2021
   Description: A Bloom filter is a probabilistic, extremely space-efficient data structure used to add elements to a set and test if an element is in a set.

4. **Name:** Social Entrepreneurship
   Date: 09/07/2021
   Description: Successful social entrepreneurships do not measure success in terms of numbers alone. As long as they have improved the lives of people, they are content with themselves.

5. **Name:** The Social Disruption
   Date: 16/07/2021
   Description: What comes to mind when you hear the word STORM? Images of dark clouds? The sound of thunder? But what about a SOLAR STORM?

6. **Name:** Behavioral Economics & Great Recession of 2007-08
   Date: 16/07/2021
   Description: It is an incredible lens that exposes our inner biases and approaches to decision-making.

7. **Name:** AI will overpower humans. True or False?
   Date: 23/07/2021
   Description: While making intelligent machines, are we inviting AI takeovers in

the future? Would Human Intelligence confront an existential emergency?

8. **Name:** The Pegasus Project

   Date: 24/07/2021

   Description: In India, at least 40 journalists from nearly every major media outlet in the country were selected as potential targets between 2017-2021.

9. **Name:** Origami Engineering

   Date: 28/07/2021

   Description: Origami, the Japanese art form that dates to the 17th century, creates unique patterns and shapes from paper folding.

10. **Name:** MyDoom - The Worst Computer Virus in History

    Date: 30/07/2021

    Description: More than 350,000 new pieces of malware are discovered every day, with an annual cost of over $55 billion. But one virus – the MyDoom virus in 2004 –leads the pack with $38 billion in damages.

11. **Name:** A brief history of AMUL and Dr. Verghese Kurien

    Date: 07/08/2021

    Description: Kurian accepted the offer for two months. Little did he realize that this contract with the milk cooperative was the beginning of a lifelong association.

12. **Name:** The Golden Ratio

    Date: 07/08/2021

    Description: Throughout the ages, artists, architects, and designers incorporated this divine proportion into their own works to make them visually pleasing.

13. **Name:** The Era of Podcasts

    Date: 16/09/2021

    Description: From social issues to k-drama reviews, you would find a podcast for any topic under the sun. Hence, it's not surprising that there are about 485 million listeners.

14. **Name:** The Science of Entrepreneurship

    Date: 16/09/2021

    Description: What makes a great entrepreneur isn't genetic or personality traits, money, risk-taking behavior, or unique vision. It is Effectuation, the science of deduction.

15. **Name:** How are Electric Vehicle batteries cooled?

   Date: 1/10/2021

   Description: In an Electric Vehicle, the source of heat is the battery. So the Battery Cooling System is essential for the functioning and performance of the vehicle.

16. **Name:** Navigating through the pandemic

   Date: 1/10/2021

   Description: India has 8.8 million people with visual impairment. With minimum access to people during this lonely pandemic, the situation only got worse.

17. **Name:** Riding the K-Wave

   Date: 13/11/2021

   Description: The cultural clout of South Korea is now global, with BTS and Squid Game becoming international phenomena. How did such a small nation achieve this?

18. **Name:** A Pervasive Perspective on Perovskites

   Date: 13/11/2021

   Description: With the boom in the semiconductor industry, researchers have begun to see the potential of perovskites, "The wonder material."

19. **Name:** Different ways to create a multi-party Video Conference App

   Date: 26/12/2021

   Description: Are you bored with doing online classes and virtual meets? So why don't you showcase your talent and have fun while creating a Video Conference app.

20. **Name:** Antikythera Mechanism - An Ancient Astronomical Computer

   Date: 26/12/2021

   Description: Have you ever heard of Antikythera Mechanism? Did this really exist? Find out more on this and enrich yourself with ancient scientific discoveries.

21. **Name:** PROJECT MARCH: A deep dive into the exoskeleton prosthesis

   Date: 02/01/2022

   Description: Boris Kustodiev, Russian painter who became paraplegic due to tuberculosis of the vertebral column. Want to know the ways to tackle this problem?

22. **Name:** Recommender Systems

Date: 14/01/2022

Description: Ever got awed by the accuracy of products recommend by e-commerce websites!? Want to know how exactly they do this? Here's all the information!

23. **Name:** AURORAS-The Intrinsic Beauty

Date: 14/01/2022

Description: Ever wondered, what are the shimmering blue-green northern lights emerging from the sky? You're right! They are Auroras! Let us now dive deep into it.

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