# Krieg: IEEE Tech Week '17

An engineering college without innovation is like an empty fruit bowl — lacking the most important feature. Keeping this in mind, several technical clubs conduct tech weeks or tech weekends to pique the interest of erudite minds in Manipal. Considering how rich the culture of technical prosperity is here, it almost seemed imperative that IEEE-the Institute of Electrical and Electronics Engineers, the world's largest technical professional organisation dedicated to advancing technology for the benefit of humanity — should conduct their own version of a Tech Week. And they did, from the 28th to the 30th of March.

Krieg, the collective name given to the events, was divided into three categories; Computex, Electronica, and Paper Presentation. The events were well structured and an ample amount of attention was given to detailing each and every aspect of the events to make them infallible. Hence, the dismal participation on the first day, which eventually led to all the events' cancellation on that day, did not do justice to a club with the stature of IEEE. Participation drastically improved from the second day onwards, assuaging scars.

## Computex

**Battle Ground — Every coder for himself**

Clearly the winner, considering its ingenuity, 'Battle Ground' strove to make algorithmic coding interesting for everyone who participated. Despite warranting a need to be proficient in the art of coding, the event saw participation from first years as well — an unexpected, albeit pleasant surprise. Conducted over a period of two days, the first day comprised a paper-based test to evaluate the expected intellect of the participants who would make it to the finals. While questions

were mainly structured as multiple-choice, some were subjective-based coding questions, these being the actual test of aptitude. Four teams out of twelve were selected to compete in the finals based on their performance on the test.



It is a club's prerogative to market their events well by making them interesting. The way IEEE conducted the final round of 'Battle Ground' deserves appreciation. Four sets of tables and chairs were placed in the form of a square such that two teams faced each other, thus exuding the perception of a real battle amongst coders. The second round was an attempt to emulate a battlefield with the only weapon being the laptop and the participant's ability to code. Each of the four teams were assigned countries which were in a state of

war for the duration of the event. They were also provided with three imaginary missiles each. These missiles were to be used whenever any team completed a question first, against another team. The affected team would be handicapped by not being able to code for the first three minutes of a fifteen-minute time limit for each program. This feature added an air of ruthless competition amongst the participants.
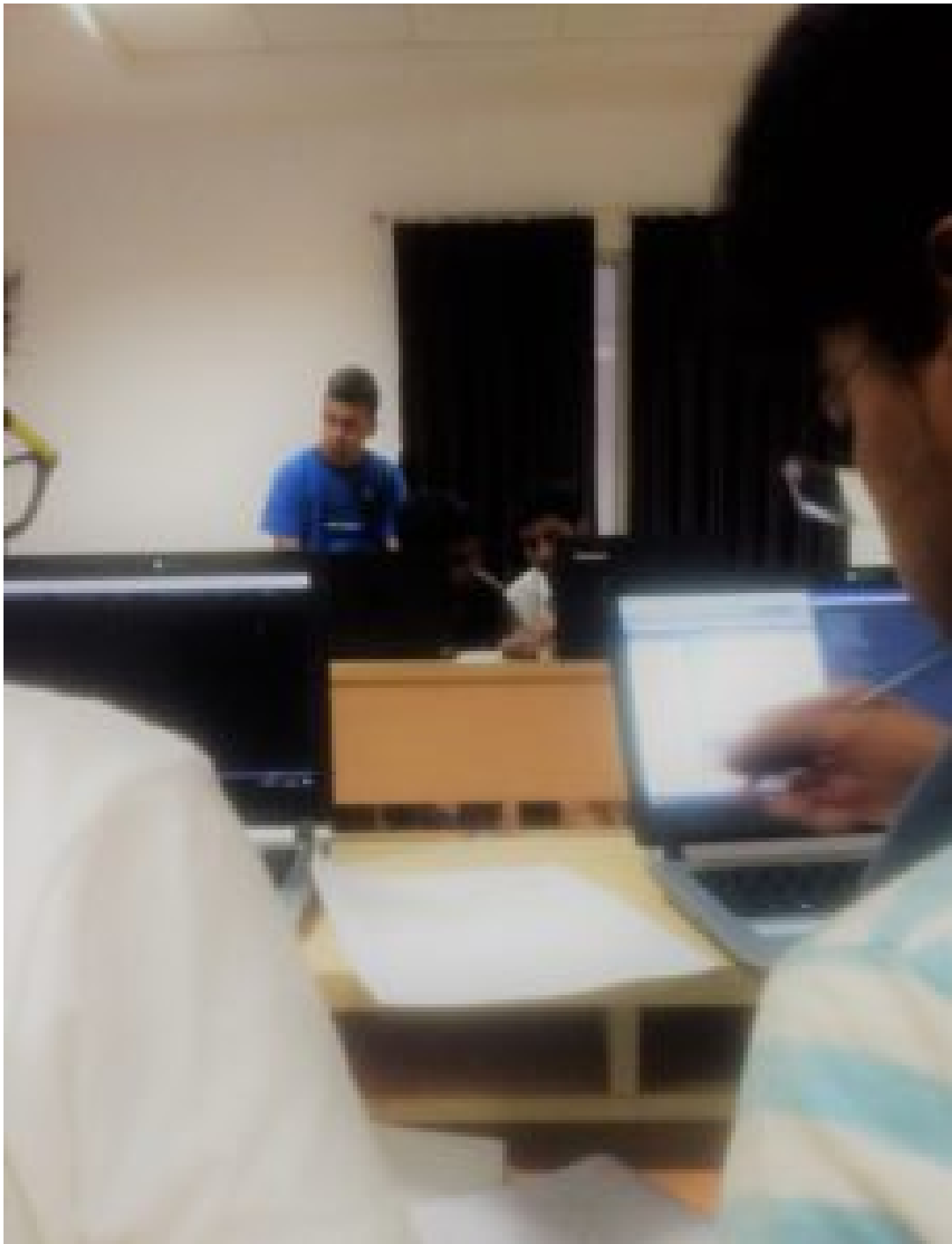


The warriors stationed themselves and war began as soon as the first bomb fell. Each team was tasked to solve ten coding

questions on a programming platform of their choice. Executed perfectly, the event boiled down to the survival of the quickest- exactly what the organisers, Mohammad Saood Abbasi and Vibhore Maheshwari, had in mind.

**Turing- Test your own ability**

During the Second World War, a certain British computer scientist was a leading participant in the breaking of German ciphers. His name was Alan Turing. His research in the fields of ciphering (encoding) and encryption and decryption was vital in ending a war as well as ending a possible drought in engineering innovation in the future. Keeping this in mind, Turing, the second event of Computex, was a 21st-century rendition of his works.

Turing was a one-day event in which three teams battled to showcase their superiority in the art of encryption and decryption. The event was all about aptitude, something the organiser, Samarth Sharma, clearly mentioned in the introduction of the event. Ergo, a lot of aptitude questions were present in the competition. This made the event a lot of more interesting for the teams and required a lot of analytical thinking, something which is preferred over rote-learning in an engineering college.
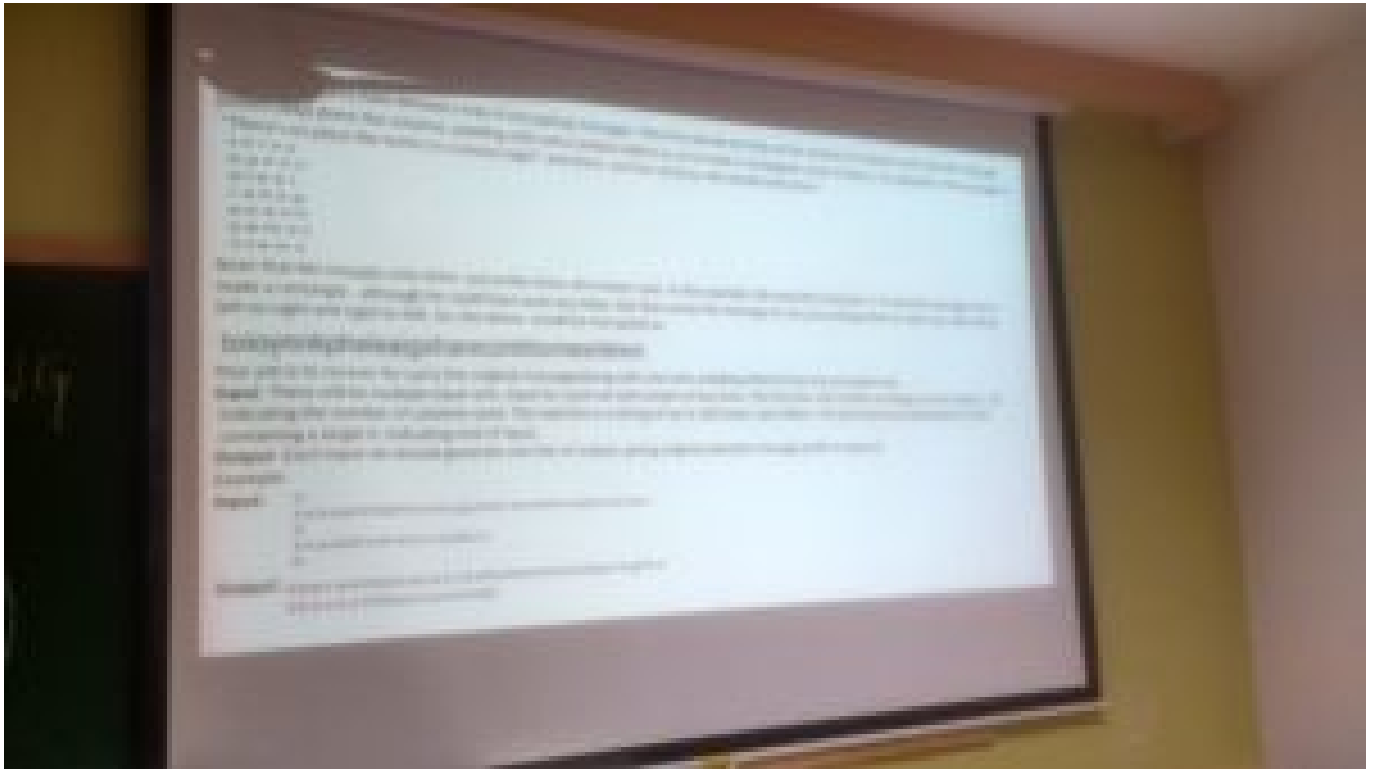
Yet, at the end of the day, it was the set of technical questions which made all the difference. The participants were given information, which varied from algorithm, encoded or decoded code. Their duty was to convert the data given to them in a required form. Points were given based on the order in which teams completed their task. On every right answer, the team to have completed first received ten points, the second team received seven and the third received five. The cumulative score revealed the winner. Completed within two hours, Turing was a short and engrossing event.

## Electronica
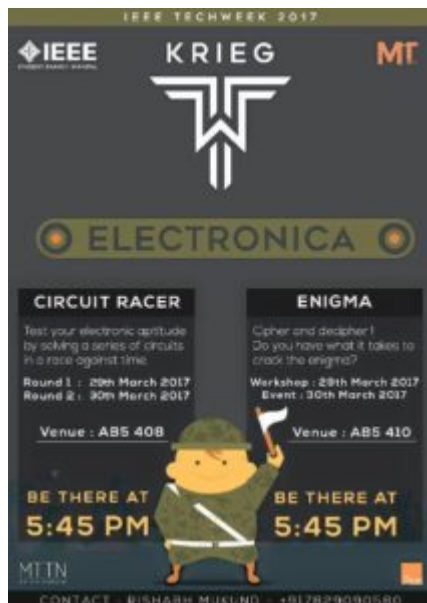
## Enigma- Bread, Butter, and Raspberry Pi

The only event with a workshop held a day prior to the actual competition, IEEE expected and received a fairly good turnout. On the second day of Krieg, the organisers covered basic cipher systems in the workshop. Students flocked in large numbers, ranging from first to third years. With a seemingly good reception, the workshop covered the basics of the event that was scheduled the next day. By the end, the attendees had a clear idea on cipher systems such as Caeser, Vigenere, Playfair, Transposition, 2 Square and 4 Square. More technical topics of importance such as decryption through frequency analysis were taught with great detail, while decryption techniques of other methods were also elaborated upon.

The most exciting part of both the workshop as well as the event unfolded at the end. Subhraneil Das and Rishab Ravi brought out the practicality of the cipher systems they had just spoken about by implementing the very same technology in making an Arduino bot operate. By doing this the potential participants of Enigma were given an idea of what they were expected to do.

Keeping in mind the lessons taught in the workshop, a basic yet slightly twisted paper was created to test the participant to the brim. Accuracy in the process of encrypting and decrypting was deemed necessary as teams had to use their knowledge on the matter not only on pen and paper but also the Arduino bot. *"We worked really hard to come up with this particular event. During the workshop, we saw many confused faces. As organisers, we are happy with the participation we had today. Despite being tricky, the paper was very well received by both IEEE and non-IEEE members"*, said Das, organiser of Enigma.

## Circuit Racer- The *Wire*

An EE Engineer's life revolves around circuits. Hence, it was not surprising when an event which tested the contestant's knowledge on the world of circuits was included in the itinerary of an IEEE event. There are many circuits that are used in science and technology today. Hence, the understanding of how these circuits operate were tested by Ranjani Balasubramanyam, organiser of Circuit Racer.

With ten interested participants for the event on the second day of the Tech Week, a preliminary round had to be conducted to reduce the number to something more suitable for the organisers to evaluate. A written test was conducted in an AB5 classroom, with questions ranging from both aptitude to basic understanding behind the proper operation of an electronic circuit and the physics behind it.

Conducted in the Electronics and Communications DE Laboratory, efficient thinking was given top priority during the third day of Krieg, when the second round of Circuit Racer was conducted. The two teams that qualified to the finals were tasked to produce a circuit from certain parameters that gave a proper structure to the circuit while not revealing all the components that were needed to make it operate. Circuit Racer required teams to use as little components as possible to complete the task. Based on this requirement, the most efficient and innovative circuit design was awarded the best circuit.

The president of IEEE (Manipal Chapter), Pushkar Dhabe, had this to say: "*Krieg, rather our Tech Week, is the most important event for any IEEE member in Manipal. The event had its ups and downs but, ultimately, everything fell into place.*" Despite the cancellation of all activity on the first day due to lack of participation, the organisers came back stronger to make Krieg a formidable success.