









#### **GOVERNMENT ENGINEERING COLLEGE BARTON HILL**

# IEEE STUDENT BRANCH

## **ANNUAL REPORT 2019 - 20**

#### **ABOUT US**

When technology meets talent, the outcomes are sure to be revolutionary. IEEE GECBH SB since its inception in **January 2005**, has showed valour in every stage of its existence, one better than the next. In this era where community efforts play key role in technological advancement, the activities of the student branch of the largest community of professionals, IEEE assume greater significance. The IEEE student branch in GECBH at present has active chapters of

- IEEE Robotics and Automation Society,
- IEEE Computer Society,
- IEEE Antenna and Propagation Society &
- IEEE Microwave Theory & Techniques Society (to be inaugurated)

A notable initiative of last year is "**Project Candela**" that built safe, low-cost, waterproof LED lamps designed to last for more than 15 hours. The lamps were distributed in flood-affected areas, and the timely intervention was widely recognized by Government Authorities.

#### **IEEE EXECUTIVE COMMITTEE**

#### STUDENT BRANCH EXECOM

Branch Counselor: **Dr. Birenjith P. S.** (Asso. Prof., Dept. of ECE)

Chairman: **Ajay Wilson** (S8 EC) Vice Chairman: **Adhithyaa G** (S6 ME) Secretary: **Rohini Krishna P** (S8 EEE) Treasurer: **George K Jacob** (S8 EC) Link Rep: **Swapnil Sinha** (S6 EC)

Joint Secretary: **Akshat Ashish Philip** (S6 EC)

Guild Rep: Aja Ram (S8 EC)

Magazine Editor: **Nadeeha A** (S8 EC)

Student Advisors: Vandana K (S8 EC), Adith Harikumar (S8 EC)

#### WEB DEVELOPMENT COMMITTEE

Webmasters: **Anantha Narayanan N** (S8 EC), **Madhav Somnath** (S8 EC)

Volunteers: **Goutham Prakash** (S4 IT), **Abhijith S S** (S4 EC)

#### **MEMBERSHIP DEVELOPMENT COMMITTEE**

Heads: Nasif Rahman (S6 IT), Abhirami P (S6 EC)

Volunteers: Vishnu Mohan (S4 EC), Alwin C Sheejoy (S4 IT), Apoorva Ananth (S4 IT),
Nanda Jayaprakash (S4 IT)











#### **TECH COMMITTEE**

Head: Rafi SM (S8 EEE)

Volunteers: Gautham S Thampy (S4 EC), Hithin Krishna (S4 ME), T R Ashuthosh (S4 ME)

#### **PROGRAMME COMMITTEE**

Heads: Karun Krishnan (S6 IT), Kalyani S Kumar (S4 ME)

Volunteers: Dazzle Dinil (S4 EC), Thaniya B Nair (S4 IT), Amreen (S4 EC), Malavika Babu (S4 EEE),

**Vyshnav P Shenoy** (S4 EC)

#### **PUBLICITY COMMITTEE**

Heads: Navaneeta P Kumar (S6 EC), Sreethi S (S6 EEE)

Volunteer: Anantha Krishnan P J (S4 IT)

#### **WOMEN IN ENGINEERING (WIE) EXECOM**

Chairperson: **Bhavana R Nair** (S8 EC)
Vice Chairperson: **Devu M Nair** (S6 CE)
Secretary: **Sharanya Narayanan** (S8 EEE)
Joint Secretary: **Farzana Asharaf** (S6 IT)
Programme Head: **Anju Ani Justus** (S8 EC)

#### **ROBOTICS & AUTOMATION SOCIETY (RAS) EXECOM**

Chairperson: **Nanditha M G** (S6 EEE) Vice Chair: **Nikhil Suresh Kumar** (S6 EEE)

Secretary: **Sreethi S** (S6 EEE) Treasurer: **Adhithyaa G** (S6 ME) Programme Head: **Aswin P** (S6 EEE)

Content Head: **Shalu Daniel Maret** (S6 EEE)

#### **COMPUTER SOCIETY (CS) EXECOM**

Chairperson: Joann Mary Varghese (S6 IT)

Vice Chair: **Akshay** (S6 IT)

Secretary: **Karun Krishnan** (S6 IT) Treasurer: **Nasif Rahman** (S6 IT)

Joint Secretary: **Athira Chandran** (S8 EC)

Programme Head: Navaneeta P Kumar (S6 EC)

Publicity Head: **Siddharth** (S6 IT)

WIC: **Devu M Nair** (S6 CE)

#### **ANTENNAS & PROPAGATION SOCIETY (APS) EXECOM**

Chairperson: **Sreeranjini A** (S8 EC)

Vice Chair: **Abhay P** (S8 EC) Secretary: **Ancilla Philip** (S8 ECE) Treasurer: **Nikhil N B** (S8 ECE)

Web Master: Akshat Ashish Philip (S6 EC)





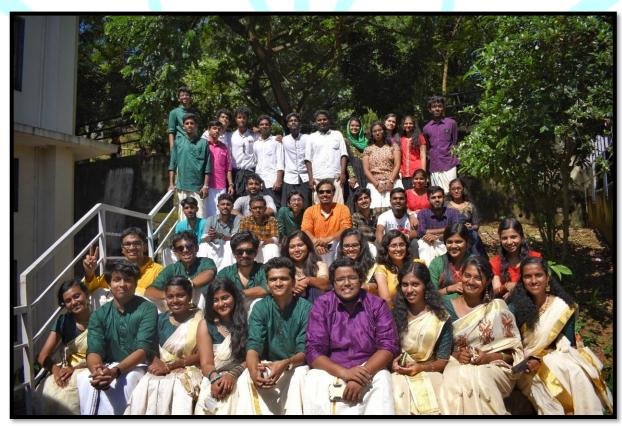






# **IEEE EXECOM 2019 – 20 | GROUP PHOTOS**















#### ANNUAL GENERAL BODY MEETING 2019

The Annual General Body meeting was conducted on **April 30**, **2019** at Zoom IT Hall, GEC Barton Hill. It commenced with members pledging the IEEE code of ethics recited by the then IEEE SB Vice Chair. This was followed by the presentation of the annual report by our then Chairman, Ashwin P. We honoured the outgoing execom members and welcomed the new Execom with *Ajay Wilson* as the *Chairman of the Student Branch*.

During this event, the winners of Project Headway conducted by IEEE Robotics and Automation Society, GECBH were presented with cash awards, by our chief guest **Dr. Jisha V.R.** (Former Vice Chair, Robotics and Automation Society, IEEE Kerala Section).

#### > WORKSHOP: METAMATERIALS - CONCEPTS & APPLICATION

On **May 20**, 2019 **IEEE APS GECBH** conducted a workshop on "Metamaterials: Concepts and Application". The workshop was conducted by **Dr. Somak Bhattacharyya** (Asst. Prof., Dept of Electronics, IIT BHU). The event also witnessed the presence of **Dr. Chinmoy Saha** (Chairman, IEEE APS Kerala Section). About **65 students** took part in the workshop. A memento was given to the guest as a token of gratitude.



#### WORKSHOP: ANTENNA DESIGN USING CST SOFTWARE

workshop on "Antenna Design using CST software on **July 13**, 2019 at Zoom IT Hall, GEC Barton Hill. We had **Mr. Chandresh Dhote** (Application Engineer from Jyothi Electronics, Ahmedabad) as the speaker for the event. The session started with basics of antenna theory and advanced to design of a rectangular patch antenna. They got familiarized with CST Software as well as antenna design. The speaker helped students in each and













every step as it was their first experience with antenna design. Students exhibited higher level of enthusiasm. Prof. Anu Mohammed, Chapter Advisor and Mr. Arjit Mitra from VSSC also took part in the session and shared their knowledge with students. Number of participants was confined to below 20 to ensure equal attention to all of them. We received an excellent set of feedbacks from participants.

#### > INTERNSHIP: ANTENNA DESIGN & FABRICATION

This five-day internship was conducted by **IEEE APS GECBH** from **July 22 – 26**, 2019 at Zoom IT Hall, GEC Barton Hill. The program was aimed to develop an affinity in UG students towards RF domain. **39 UG students** from 5 different colleges participated in the program. Dr. Aprem T J (former RF Head, VSSC) and Dr. Chinmoy Saha (Chairman of IEEE APS Kerala Section) were guests of honor. APS-ADAF 2019 was officially inaugurated after Inaugural address by chief guest and felicitation by guests. Vote of thanks was presented by Prof. Anu Mohammed (Chapter Advisor).

The very first session of APS-ADAF was handled by Dr. Suresh Nair. He gave a brief but very interesting and effective session covering the very basics of electromagnetic theory and some case studies. Dr. P Mohanan from CUSAT, discussed some basic concepts of antennas and electromagnetic theory. Mr. Vinod Kumar (Research Scholar from IIST) handled the sessions and helped students to design their own antennas. 6 different types of antennas were designed by students.

Kathiru and Jeena (alumni of GEC Barton Hill) also helped them. Dr. Santhosh Kumar from College of Engineering, Trivandrum explained about OpenEMS, a free and open-source electromagnetic simulation software. Dr. Basudeb Ghosh (IIST) explained about numerical methods and their application in electromagnetics. Mr. Ram Gopal and Mr. Amit Mohanty from Entuple technologies Pvt. Ltd. demonstrated the fabrication of planar structures. Antennas designed by students were fabricated with their help. A session was handled by experts from Innovative Instruments Pvt Ltd. The antennas fabricated were tested using the mobile multipurpose equipment of Keysight Technologies.













#### > IEEE ORIENTATION 2019

An orientation about IEEE and its activities was organised by the Execom members of **IEEE GECBH SB** on **August 8**, 2019. The orientation program was headed by Adhithyaa G (Vice Chair, IEEE SB). Almost 300 students were addressed during the program and the team explained to them about the benefits of being an IEEE member and the joy of volunteering. The team presented the report of the past activities as well as the achievements of the SB. Inorder to create an interest among students, a rover was designed and demonstrated by a team headed by the Tech Head, Rafi SM.



#### WORKSHOP: PCB DESIGNING & SOLDERING

A two-day workshop on PCB designing and soldering was organised by **IEEE RAS GECBH** on **August 17 & 18**, 2019 in the College. The workshop was open to students from all colleges. **101 students** from different Colleges in Trivandrum participated in the same. The sessions were handled by Aswin P (Program Committee Head, IEEE RAS SB GECBH) and Sreethi S (Secretary, IEEE RAS SB GECBH). The organisers were successful in rendering the participants with both theoretical knowledge and hands on experience in Soldering and software based PCB designing.



On the first day of the workshop, more emphasis was given to soldering. The following day students were given training in Proteus software. The participants were given a task during afternoon session of the same day. All students succeeded in completing the same. The winners of the task were awarded a gift marking the end of the two-day workshop. Feedback was collected from the students to facilitate documentation and to make necessary improvements in the subsequent workshops to be conducted.











#### > INDUSTRIAL VISIT: DOORDARSHAN KENDRA

**IEEE APS GECBH** in association with IEEE MTT-S Student Branch Chapter, Government Engineering College Barton hill, Trivandrum organized an Industrial visit to Doordarshan Kendra, Trivandrum, which is a public service broadcaster founded by the Government of India. A group of **28 students** started their journey from GEC Barton hill on **August 28**, 2019, accompanied by Prof. Anu Mohammed. This program was designed to give the students some exposure to the current practices in transmission of AV signals for the purpose of communication using television via satellite communication, terrestrial transmission, etc. The students were given many real-time and practical exposure regarding various practices in the transmission side as well as in various studio and administrative practices. The students were first assembled in a seminar room and were given general awareness regarding the theoretical face of AV signal transmission and modulation. Later the students proceeded to studio rooms. Various technical and non-technical practices were introduced; it included various practices in program control room, master switching room and programme studios. The event had excellent feedback from participants.



#### > WORKSHOP: ADOBE PHOTOSHOP

basic Session on "ADOBE PHOTOSHOP" on **Sept 1**, in MG03 Room at GEC Barton Hill. The session started with installation of Adobe Photoshop CC 2018 on all the laptops present in the session. A total of **50 students** participated in the event. The basic introduction about photoshop was given by Omkar. The description of the interface was given by Ankita. The basics of PS, which included layers and selections, was taken by Omkar. Though it took time to teach these concepts, we ensured that it was clear to each and every one. After lunch break, Akshat taught the class













concepts such as Brush tool, Clone Stamp, Healing and Eraser tools. Ananthanarayan took advanced concepts such as layer mask, content aware, text tool, Layer styles etc. Lastly he displayed a demo poster, and created a poster from scratch so that participants could see and practice it.

#### EVENT: CRYPTOBASH 2.0

The Cryptobash 2.0, an online coding competition was conducted by **IEEE Computer Society GECBH** as part of IEEE Week Celebrations 2019, on **October 12-13**, 2019 in the online platform HackerEarth. The objective of Cryptobash was to present the participants with problems that pertain to real-world challenges faced by professional programmers and also introduce the first year students to the world of competitive programming. The event was a success and close to **22 students** participated in it.

#### > WORKSHOP: SESSION ON MATLAB

On **October 13**, 2019, **IEEE APS GECBH** and IEEE MTT-S GECBH conducted a workshop on MATLAB. The workshop was aimed to familiarize the students with basics of MATLAB which is a very important tool for engineering students. **52 students** from different colleges participated in this event. The event was conducted at Mini Auditorium, GEC Barton Hill. We had **Mr. Nidheesh S Kumar**, a developer at InApp Technologies who is also an Alumni of the college to conduct



the workshop. He was also accompanied by Mr. Karthik who is also an Alumni. Students from GECB and other colleges attended the workshop.

#### > TALK: WORLD OF UX & BEYOND

IEEE GECBH SB in connection with its IEEE Week Celebrations conducted a talk session on "World of UX & Beyond" handled by Mrs. Mithila Chandran (Sr. UX Engineer, QBurst Technologies Pvt. Ltd). She is a Certified User Experience Analyst, a course offered by HFI. Globally, only around 350 people have passed this course. This talk session was exclusively for IEEE Members of GECBH SB.













The talk was conducted on **October 16**, 2019 at Zoom IT Hall, GECBH with **70 participants**. The session was very interactive as well as informative. Mrs. Mithila gave a good insight on what the field of UX is all about, it's scope and its importance in daily life. The full house audience were very much enthusiastic and enjoyed the session. The talk concluded with a Q&A session. Mrs. Mithila was presented a memento by Dr. Birenjith PS, Branch Counselor, IEEE GECBH SB.

#### SESSION: TECH SUPPORT FOR BEGINNERS

The prime motive of IEEE GECBH SB was to impart technical and non-technical skills through practices, since we believe that its only through practices that our brains are put in muscles. Foremost, a training session was held every evening for one month where the enthusiasts were introduced to the basics of technical world. The sessions guided them to use microcontrollers, sensors, motors etc. The sessions were mostly handled by the execom members of **IEEE GECBH SB**. At the end of the sessions the participants, mostly first years, were able to build their own bots like line follower, RC controlled bot, gesture controlled bot. To get an exposure, these people were taken to one of the biggest tech fest in Kerala, **TATHVA 19**, held at NIT Calicut from **October 18 – 20**, 2019, by IEEE GECBH along with other technical societies of our college. Around **140 people** from GECBH participated in various events held which included both technical and non-technical, and even won several prizes. These evoked huge interest in members and the reviews revealed that this inspired many beginners who were not ready to come forward to explore themselves, which marked the success of our teamwork.

#### > SESSION: TECH SUPPORT TO EYANTRA

E-Yantra, Robotics Competition hosted by the MHRD, witnessed active participation of about **75 students** from GEC Barton Hill this year. **IEEE RAS GECBH** offered them help right from the initial registration process. They were given guidance for qualifying the preliminary tests and a platform was created for them to do the test. All the teams were qualified to the next round. It was a great inspiration to all because most of the participants were beginners.

### > INITIATIVE: E-WASTE COLLECTION DRIVE

On the eve of the **Kerala Piravi celebrations 2019**, GECB witnessed a unique initiative from **IEEE WIE GECBH**. An E-waste Collection Drive was scheduled to operate in the college from **November 1 – 11**, 2019. Along with the collection of e-waste inside the college, we also went around the neighbourhood spreading awareness and collecting as much e-waste as we can. IEEE WIE also collaborated with a few schools in this venture. The heartfelt support and encouragement from all the student members really proved to be a big help in all the various stages of the collection process.













#### > EVENT: GROUP DISCUSSION

On **8<sup>th</sup> November**, 2019 **IEEE WIE GECBH** conducted a group discussion on the topic "Patriarchy in the professional world". Students from all semesters took part in the GD. Both IEEE and non-IEEE members were allowed to participate. The event saw an energetic group of contestants eager to voice their opinions. Views and topics pertaining to the subject were brought to light through various different aspects which made the event a big success.



#### > TALK: SEMINAR ON AVIONICS

**IEEE GECBH SB** in association with its **APS & MTT-S** student chapters conducted a "Seminar on Avionics" under the "Distinguished Lecture Series" at Zoom IT Hall on **November 15**, 2019. **Dr. U. S. Russel Paul** (Asst. General Manager, Air India Engineering Services, Trivandrum) was the chief speaker of the session. The session saw a good participation from the students, **about 60 people** attended the talk session.

Dr. Paul introduced the domain of avionics in a neat, well-organised PowerPoint presentation which had actual pictures of the components and technological systems used in avionics. The session was very much alive as he quoted the practical problems faced in this field, connecting it with events that happened recently. The talk concluded with a Q&A session. Dr. Paul was presented a memento as a token of gratitude on behalf of IEEE GECBH SB. Also, the five members of IEEE GECBH family who did their internship at the prestigious IIT Varanasi were also felicitated during the event. They shared their experience at the premier institution which was a great motivation for the students who wish to have an illustrious career ahead.













#### > WEBSITE LAUNCH

IEEE GECBH is extremely happy to announce the launch of its own website. The website was launched

by **Dr. K. Suresh** (Principal, GECBH) in the presence of Dr. Birenjith PS (Branch Counselor, IEEE GECBH SB) along with some Execom members on **November 26**, 2019. The website was developed by the Web Development Committee of SB headed by Anantha Narayanan and comprising of Abhijith S S and Goutham Prakash. The Execom congratulates the laudable efforts of the team in bringing up this website. All our updates will reach you through **www.gecbieee.org** 



#### TALK: SEMINAR ON ELECTROMAGNETICS IN MIMO ANTENNAS FOR FUTURE NETWORKS

On January 24, 2020, IEEE GECBH SB in association with APS & MTT-S Chapters jointly conducted a 'Seminar on electromagnetics is MIMO antennas for future networks' by Dr. Debdeep Sarkar [Post-Doctoral Research fellow from Royal Military College, Kingston, O N, Canada] as the *third lecture of its distinguished lecture series (DLS)*. The session was aimed to give the participants an insight into current trends in antenna technology and the scope and opportunities in the field of antenna technology.



**68 UG students** from various semesters attended the event. Dr. Debdeep Sarkar started the session with a small briefing on the benefits of joining a society like IEEE and the opportunities that are open before the students who are members of such societies. He also gave an idea about the scope for higher studies in RF and Microwave domain, within the country in prestigious institutions like IIT's, NIT's, IISc, etc. as well as abroad in institutions, like RMC Canada. An overview into the fundamental aspects of electromagnetics, their nature and propagation in space and various mechanisms involved was given during the session.











#### **EVENT: BEST ENGINEER 6.0**

The "Best Engineer" is a **flagship competition** conducted by the **IEEE GECBH SB** for scholarship worth **INR 10,000** aimed at finding the best future engineer among the freshmen on campus. The sixth edition of Best Engineer event had three very competitive rounds testing the candidates for the most crucial skills that engineers need - problem solving, basic know-how and team work.

The first round was a preliminary exam based on the basics that outline the STEM field. A test as to how they could use their existing knowledge and apply it in something as simple as a paper as well as working in a time bound stressful environment. The second round had the students choosing one among the many unsolved problems in the world, ideate, research and develop their ideas, compile a report and present their engineering solution. This was one very challenging round with a twist that meant only one team could advance to the finals, which meant their team work mattered the most.



The finals was a classic interview round conducted on **January 25**, 2020, that tested the blooming engineers' ability to think, speak, solve and present themselves for who they are. The finalists had to submit a resume as well as a questionnaire that asked them why they deserved the award beforehand. From more than **250 participants** and 4 finalists, **Vivek Kumar Chaubey** (Dept. of Information Technology) emerged the winner.

#### > EVENT: IEEE COMPUTER SOCIETY MEET UP

IEEE CS SB Meetup was held on **January 28**, 2020 at Zoom IT Hall, GEC Barton Hill. It was a session to welcome and orient the first year students to the **IEEE CS GECBH**. Our CS Chapter advisor, **Mrs Josna V R**, spoke about the benefits of IEEE CS and the chapter chair, Ms Joann Mary Varghese spoke about the opportunities such as, awards and scholarships, available as IEEE CS Members. Also, the former execom members shared about the experiences and encouraged the rest of the members. The session was wrapped up with a game of Kahoot!













#### **WORKSHOP: SIXTH SENSE ROBOTICS**

The technical activities of **IEEE RAS GECBH** for the year 2020 was given a good start with a two day workshop on Sixth Sense Robotics with Brainwave held on **February 1 & 2**, 2020. **50 participants** from different colleges enthusiastically participated in the same.

Experts from Anvira Edustation handled the sessions. Take away kits were given to each team of five students. In the first session, the participants were given training on MATLAB. It was followed by a Ball Following Robot building task. The Brainwave headset demonstrated in the subsequent session was a new experience to every participant. They were also given a theory class on the working of brainwave headset. The reviews of the participants reveald that the workshop was truly interesting.

On the whole the workshop was an intellectually rigorous and technologically refreshing experience.



## > INDUSTRIAL VISIT: Liquid Propulsion Systems Centre, ISRO

On **February 6**, 2020, IEEE Student Branch, Government Engineering College - Barton Hill (**IEEE GECBH SB**) organized a one-day Industrial visit to **Liquid Propulsion Systems Centre (LPSC)**, a research and development centre functioning under **Indian Space Research Organization (ISRO)**, at Valiamala, Trivandrum. A group of **25 students** from various departments, studying in various semesters, was accompanied by a faculty member.

The students were welcomed by the HR Department of the organization and was led to a seminar hall. The students were given an introductory video presentation regarding the activities of LPSC, Valiamala, the projects undertaken in the past and present, the modus operandi, outsourcing of works, and future projects to be undertaken. They were given a brief theoretical overview of propulsion systems (solid, liquid and electrical), cryogenic and semicryogenic propulsion, the differences between solid and liquid propulsion, common liquid propellants and oxidizers used, parameters measured (like specific impulse (lsp)), and the future of Indian space technology.













The students were later taken to Integrated Assembly and Testing Facility- Spacecraft Thrusters (IATF-ST). It is intended to perform high altitude testing for performance evaluation of spacecraft thrusters of ISRO's satellite thrusters. The students were then led to an electronics lab which had various facilities to measure system compatibility, interference and problems on components due to radiation environment in Van Allen belt, sensor compatibility testing, and to design various electronic control systems for activation of boosters during pitch, yaw or roll.

#### **EVENT: GIT CORNER**

**IEEE Computer Society GECBH** conducted a basic Session on "Git & GitHub" on **14**<sup>th</sup> **February** 2020, at MB01 classroom, GEC Barton Hill. A total of **45 participants** reached the venue and then the session started with a basic introduction to Git and Git commands. After that an introduction to GitHub was given. This was followed by a hands on session.



#### > WORKSHOP: EZERO BIPED ROBOTICS

In association with IEEE GECBH SB, Department of Electronics and Communication Engineering, GEC Barton Hill conducted a workshop "EZERO" as a flagship event of the annual techno cultural fest Aagneya 20. The workshop was an illuminating experience for all the 360 students who participated with its brilliant insights into the realm of Biped robotics and automation. A pioneering company on robotics, Anvira edustation (based on IIT BOMBAY) led the workshop to ecstatic levels with their interactive sessions. The workshop was conducted on February 15 & 16, 2020 at Drawing Hall, GEC Barton Hill.



The sessions concluded by developing a biped robot with basic functionalities such as locomotion and interaction. A competition was conducted to test the overall grasp and effectiveness of the workshop and the best teams were offered free internships and other exciting offers.











#### WORKSHOP: CEREBRO BRAINWAVE ROBOTICS

As part of college fest Aagneya '20, Department of Electrical & Electronics Engineering, GEC Barton Hill in association with **IEEE GECBH SB** conducted "CEREBRO" - a brain wave controlled robotics workshop

handled by an IIT based company, Anvira Edustation. The workshop which was conducted on **February** 22 - 23, at DJ Hall, College of Engineering, Trivandrum saw **385 attendees**. The aim of the workshop was to introduce the participants to the emerging field of Artificial Intelligence, that deals with the development of Intelligence machines which could mimic our actions.



The sessions ended by developing a bot which could operate by monitoring the brain activities in real time. Usually, robots have been configured to perform tasks by programming them explicitly. Use of brainwave headset impart curiosity and interest in participants. A competition was conducted during the same and the best teams among them were offered free internship opportunities and merit certificates.

#### > EVENT: CODER'S CLAN

A basic session on "Programming with Python" was conducted on **24<sup>th</sup> February** 2020, at MG01 classroom by **IEEE Computer Society GECBH**. A total of **23 students** participated. The session started with a basic introduction to Python. A comparison of Python with C & C++ was also given. The session was made interactive as possible. All the beginners who attended the session were assigned mentors to help them with programming.

This PDF contains report of Events conducted by IEEE SB GECBH till 24th February, 2020

Submitted by

#### Adhithyaa G

Vice Chair, IEEE Student Branch Government Engineering College, Barton Hill, Thiruvananthapuram – 695 035

Mob: +919400664148 | Email ID: adhithyaaganesh@ieee.org