VISION:

To be a pacesetter in the field of Electronics and Communication Engineering.

MISSION:

- To provide quality education for the students in the field of Electronics & Communication Engineering.
- To educate students about professional and ethical responsibilities and train them to build life skills for their career development.

IN THIS EDITION:

HOD'S DESK

Prof. Dr. Anto Sahaya Dhas

It gives me immense pleasure to note that another edition of NEXUS is ready for launch. Electronics Engineering is changing the way we think and work, and plays a significant role not only in solving different kinds of engineering and technological problems but also in satisfying societal needs such as health care. Consequently, great advances have taken place in the field of Electronics and Communication Engineering, bringing together the understanding of the scientific and technological foundations of electronics, the concepts of design-oriented software and hardware as well as those of communication technologies. We as Electronics engineers endeavours to contribute to these advances through our new ideas and research in this field.

"Scientists study the world as it is; engineers create the world that has never been." - Theodore von Karman

Prof. Dr. Anto Sahaya Dhas
Head of Department
Electronics And Communication Engineering
Vimal Jyothi Engineering College, Chemperi

jyothirgamaya

You have stepped into this college with fresh thoughts, noble aims, high hopes and aspirations. We assure you that your ambitions will be accomplished by the successful guidance of our beloved lecturers

On behalf of ECE Department we welcome you, 2021-25 batch to our college

NO PERIOD OF MY LIFE HAS BEEN ONE OF SUCH UNMIXED HAPPINESS AS THE FOUR YEARS WHICH HAVE BEEN SPENT WITHIN COLLEGE WALLS -HORATIO ALGER

INDUCTION PROGRAMME FOR FIRST YEARS

Student induction programme was conducted for first year students of 2021-25 batch by KTU, from 22-10-2021 to 27-11-201. The sessions were

- Inauguration and academic regulations by Vice Chancellor, Pro Vice Chancellor, Prof. Dr. Vinodkumar Jacob (Syndicate Member) and Dean (Academic)

- Talk by Sri. Manoj Abraham IPS, Additional Director General of Police, Kerala State.

- Talk by Smt. R. Sreelekha IPS (Retd. Director General, Fire and Rescue Services, Kerala State) on Safety of Youth.

- Talk by Dr. Arun B. Nair, Psychiatrist, Govt. Medical College, Trivandrum on Psychosocial Competence.

- Talk by Dr. S. Somanath, Director, VSSC on Possibilities of Engineering Domains.

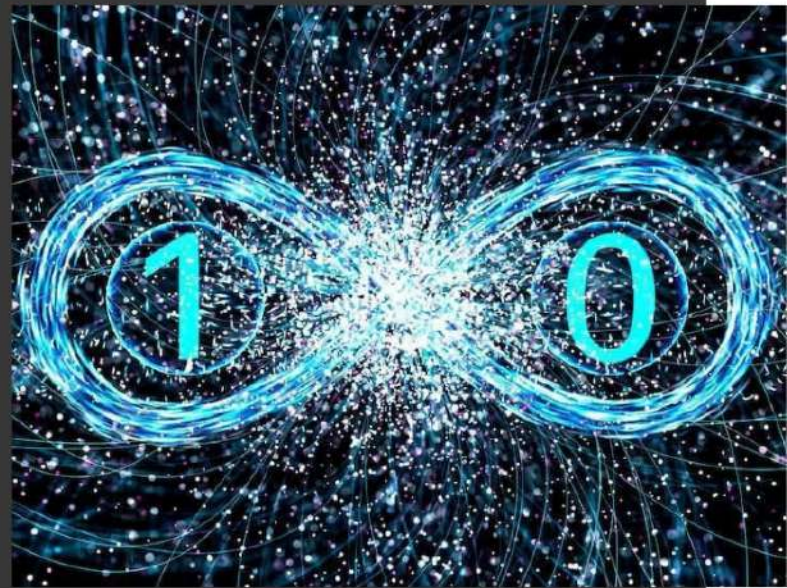- Talk by Smt. K. K. Shailaja Teacher

A GLIMPSE, QUANTUM COMPUTING

ARTICLE

Quantum mechanics emerged as a branch of physics in the early 1900s to explain nature on the scale of atom. The idea to merge quantum mechanics and information theory arose in the 1970s but garnered little attention until 1982.

In 1994, however, interest in quantum computing rose dramatically when mathematician Peter Shor developed a quantum algorithm, which could find the prime factors of large numbers efficiently. Here, "efficiently" means in a time of practical relevance, which is beyond the capability of state-of-the-art classical algorithms.

Quantum and classical computers both try to solve problems, but the way they manipulate data to get answers is fundamentally different. The two main principles of quantum mechanics which is crucial for the operation of quantum computer is superposition and quantum entanglement. Superposition is the counterintuitive ability of a quantum object, like an electron, to simultaneously exist in multiple "states." Understanding superposition makes it possible to understand the basic component of information in quantum computing, the qubit. In classical computing, bits are transistors that can be off or on, corresponding to the states 0 and 1. In qubits such as electrons, 0 and 1 simply correspond to states like the lower and upper energy levels discussed above. Qubits are distinguished from classical bits, which must always be in the 0 or 1 state, by their ability to be in superpositions with varying probabilities that can be manipulated by quantum operations during computations. Entanglement is a phenomenon in which quantum entities are created and/or manipulated such that none of them can be described without referencing the others.

WHY DO WE WANT IT?

The promise of developing a quantum computer sophisticated enough to execute Shor's algorithm for large numbers has been a primary motivator for advancing the field of quantum computation. it is believed that quantum computers will help immensely with problems related to optimization, which play key roles in everything from defense to financial trading. Multiple additional applications for qubit systems that are not related to computing or simulation also exist and are active areas of research, but they are beyond the scope of this overview. Two of the most prominent areas are (1) quantum sensing and metrology, which leverage the extreme sensitivity of qubits to the environment to realize sensing beyond the classical shot noise limit, and (2) quantum networks and communications, which may lead to revolutionary ways to share information.

HOW ARE WE TRYING TO GET IT?

Building quantum computers is incredibly difficult. Many candidate qubit systems exist on the scale of single atoms, and the physicists, engineers, and materials scientists who are trying to execute quantum operations on these systems constantly deal with two competing requirements.

First, qubits need to be protected from the environment because it can destroy the delicate quantum states needed for computation.

Second, however, for algorithm execution qubits need to be entangled, shuffled around physical architectures, and controllable on demand. The better these operations can be carried out the higher their "fidelity." Balancing the required isolation and interaction is difficult, but after decades of research a few systems are emerging as top candidates for large-scale quantum information processing.

CONCLUSIONS AND OUTLOOK

Quantum computers have the potential to revolutionize computation by making certain types of classically intractable problems solvable. While no quantum computer is yet sophisticated enough to carry out calculations that a classical computer can't, great progress is under way. A few large companies and small start-ups now have functioning non-error-corrected quantum computers composed of several tens of qubits, and some of these are even accessible to the public through the cloud. Additionally, quantum simulators are making strides in fields varying from molecular energetics to many-body physics.

As small systems come online a field focused on near-term applications of quantum computers is starting to burgeon. This progress may make it possible to actualize some of the benefits and insights of quantum computation long before the quest for a large-scale, error-corrected quantum computer is complete.

Vinay C Shibu
S7 ECE

PUBLICATIONS

- **Ms. Anusha Chacko** Published an article "Deep learning-based robust medical image watermarking exploiting DCT and Harris hawks optimization", International Journal of Intelligent Systems, WILEY 2021.

- **K C Manoj** and **Dr. D Anto Sahaya Dhas** published a paper titled 'Review on Brain Tumor Malignancy Prediction By 3D Reconstruction' in IEEE Explore on 20-10-21

- **Ms. Anusha Chacko** Presented a paper "CSMI-AW: Computational System for Medical Image Authentication using Watermarking" in the international conference, 5th Computational Methods in Systems and Software 2021, October 13, 2021 - October 15, 2021 (CoMeSySo 2021)

- **Neeraja Molachan**, **Manoj K C** and **Dr. D Anto Sahaya Dhas** published a paper titled 'Brain Tumor Detection that uses CNN in MRI' in IEEE Explore on 4-10-21

CONGRATULATIONS

S1 UNIVERSITY TOPPERS

Alaida Thomas

Devika Dinesh E

Amruthendu K

EVENTS CONDUCTED

- **Webinar on '5G Mobile Communications' : 12-10-2021**

Department of Telecommunications, Government of India, (Kerala Licensed Service Area) conducted a webinar for Students on '5th Generation Mobile Communications' on 12th October 2021 at 02:00 pm.

- ## Alumni Interaction on "How to become an entrepreneur" : 20-11-2021

The Electronics and Communication Department has conducted an Alumni Interaction on 'How to become an entrepreneur on 20-01-2021 by Mr. Alex M Sunny and Mr.Vishnu Sankar (Astrek Innovations Kochi), 2018 Pass-out Alumni. Venue was Advanced Communication Lab, Electronics and Communication Engineering Department. The interaction was conducted from 03:10PM to 04:10PM. The session was really informative and interactive. The interactive session was followed by a QnA session in which the students were able to clarify their queries and doubts.
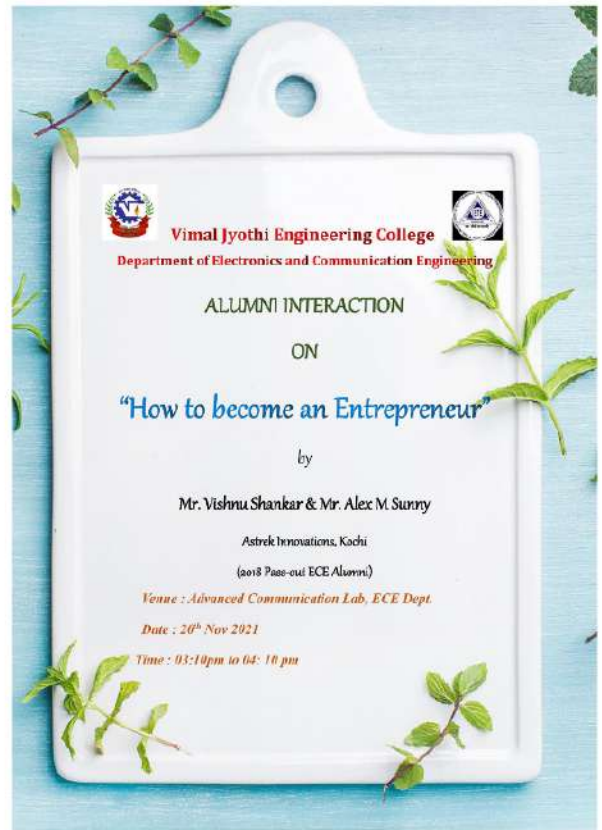
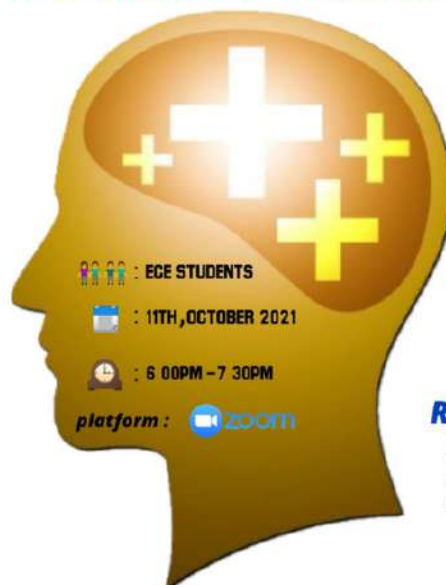- ## Webinar on 'Civil Services Examination Orientation Programme 18-11-2021

The Electronics and Communication Department has conducted a webinar on 'Civil Services Examination Orientation Programme on 18-11-2021 for S7 ECE Students by Ms.Remya Roshini IPS(Ex) and Sasikanth Senthil IAS (Ex) Civils Cafe, IAS Study Circle Trivandrum. The programme aims to educate the students about various aspects

of cracking the civil services examination. Notably, topics like civil services as a career, various departments and their working atmosphere, the duties, rights and responsibilities of civil servants, personality of people in civil services, examination and its pattern and more topics would also be covered in the orientation programme. It was a very good informative and interactive session. The orientation session was followed by a QnA session in which the students clarified their queries and doubts.

EVENTS CONDUCTED

- ## Webinar on' Positive Attitude ': 11-10-2021

The Electronics and Communication Department has conducted a webinar on 'Positive Attitude 'on 12-10-2021 through the online platform google meet. The resource person for the webinar was Fr. Sabu Thomas. A positive attitude is a state of mind that allows you to envision and expect good things. It does not mean living in denial of the negative situations around you. This attitude allows you to stay optimistic. The benefits of a positive attitude include anticipating happiness, health, success, and opportunities. The session was really helpful for the students

Vimal Jyothi Engineering College, Chemperi, Kannur

Department of Electronics and Communication Engineering

WEBINAR ON POSITIVE ATTITUDE

positively always wins"

: **ECE STUDENTS**

: **11TH ,OCTOBER 2021**

: **6 00PM – 7 30PM**

platform : **zoom**

Resource person
Fr Sabu Thomas
Asst. Professor
Sacred Heart College
Thevara

Coordinator
Jerrin Vomas
Assoc. Prof
Vimal Jyothi Engg.
College

Convener
Dr Anto Sahaya Dhas
HOD ECE

TRAINING PROGRAMME PARTICIPATION

- **Dr. Roshini T V** has successfully completed one week Instructor Led Live online training on Python Programming by Finland Labs from 25 to 29 October 2021

ADVISORY MEETING

S3 ECE first Advisory meeting conducted on 31.11.2021 at 12.30 PM.

PLACEMENT CORNER

VIMAL JYOTHI ENGINEERING COLLEGE, CHEMPERI

ELECTRONICS AND COMMUNICATION ENGINEERING

Congratulations

Placed in **tcs** TATA CONSULTANCY SERVICES

Abhilash C   Anjitha Satheeshan

UPCOMING EVENTS

The International Conference on IoT, Computer Communication, Electrical and Electronics Technology (ICICCEET-2022) will be held as online mode (Vimal Jyothi Engineering college, Kannur, Kerala, India) on 4th & 5th March 2022. The objective of ICICCEET-2022 is to present the emerging trends related to Electronics, Communication, Computer science, Electrical Engineering and their allied fields. The aim of the conference is accelerate basic science, innovation for the development and application of technology. It also aims to provide a platform to the researchers from both academia as well as industry to meet and share cutting-edge development in the IoT, Computer Communication, Electrical and Electronics in line with the conference theme "Technology for Sustainable Future".

IETE Sponsored

ICICCEET-2022

International Conference on IOT, Computer Communication, Electrical and Electronics Technology

4th & 5th MARCH 2022

VENUE
ONLINE PLATFORM

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Organized by
Electronics and Communication Engineering Department

VIMAL JYOTHI ENGINEERING COLLEGE
JYOTHI NAGAR, CHEMPERI
KANNUR, KERALA, INDIA

WWW.ICICCEET.COM

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

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1. Graduates will have successful career in the field of Electronics and Communication Engineering and allied sectors
2. Graduates will have the ability to pursue higher studies and research
3. Graduates will demonstrate entrepreneurial skills to develop innovative products and services
4. Graduates will adapt to different roles in global working environment by respecting diversity and professional ethics

WE WISH YOU

Merry
CHRISTMAS
and
Happy new year

EDITORIAL BOARD

· ·

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