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A TECHNICAL MAGAZINE CUM NEWSLETTER

DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING

KUMARAGURU COLLEGE OF TECHNOLOGY



A special issue on Outcome Based Education

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THE MYTH OF ENGINEERING ACCREDITATION

Series #1

Dr.S.A.PASUPATHY

Engineering is the only professional program which offers wide varieties of undergraduate and post graduate programs. However, each country has their own policies on framing curriculum which creates a lacuna and makes it difficult for the students to migrate from one country to other or one institution to other. Moreover, after the World War-I, the demand for fresh engineering talent pool with requisite knowledge and skill were very high but the engineering institutions failed to supply sufficient qualified personnel for the industry. Thanks to Prof. William Elgen Wickenden who extensively investigated the gap in curricula taught in engineering schools which led to creation of engineering accreditation.

To overcome these problems, in 1930s, the engineering accreditation organisation was started in the US which insisted that the curriculum should cover wider spectrum of courses which consists of not only technical courses but also science and humanities courses. Ever since the inception of accreditation organisation in the US, the process and evaluation methods have changed significantly. During 1930s the grant of accreditation for engineering schools is more of subjective discretion of panel of evaluators and the parameters used for evaluation was just over a page.

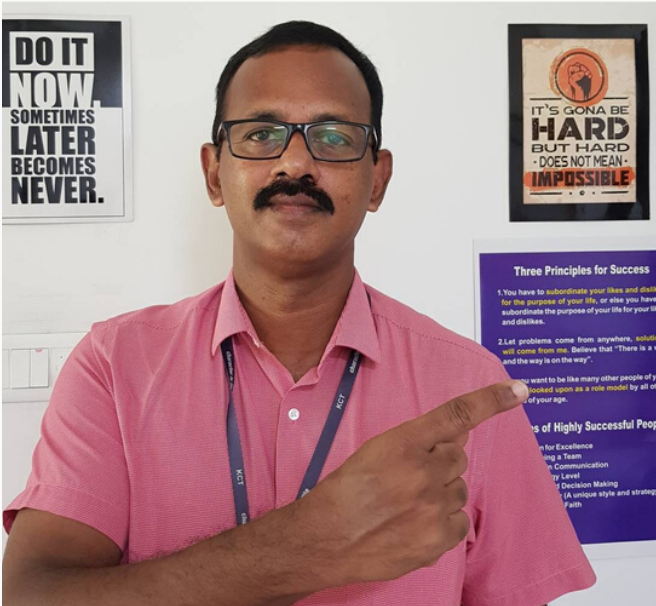
However, the next generation accreditation format was developed after the 2nd world war, unlike, the first generation accreditation, this emphasised on specific quality and quantity criteria to be met for accreditation. The 10 criterion for accreditation were taken from the

Grinter report which stressed to provide sufficient scope for humanistic-social studies content in the curriculum. The number of criterion used for accreditation has increased from one page in 1950s to 14 pages in 1987 to accommodate the emerging diversity in engineering programs such as computer engineering. The current form of Outcome Based Education (OBE) by ABET has two pages long assessment which highlighted professional, social responsibility along with good communication skills and the currency of knowledge in a particular domain / discipline. After India become the permanent signatory of Washington Accord (WA), National Board of Accreditation (NBA), India made significant changes to suit for Indian Higher Education (HE) system which vary considerably from the other countries. India is one of the few countries offering HE through large number of colleges affiliated to Universities where the curriculum, evaluation of students performance are controlled by the affiliating university. Therefore, two different methods have been implemented for accreditation wherein Tier-I is meant for universities and autonomous institutions and Tier-II for affiliated colleges. This series aims to demystify the process of attaining successful accreditation status in a more systematic way of practicing OBE, preparing documents, facing the committee in ease during the visit. Trust, this will be interesting to all of you and look forward to listen to your views.

PARADIGM SHIFT

FROM "OBE AS A CONCEPT" TO "OBE AS A REALITY"

Prof. Dr. S.BHASKAR,
Faculty, Mechanical Engineering Department,
Kumaraguru College of Technology



It is essential to think as “There is a thinking stuff from which all things are made. A thought translated into action becomes reality.

The contribution of Albert Einstein to the philosophy of science is unquestionable. I strongly believe that it became possible for Albert Einstein due to his “Knowledge” doing at “CREATE” level, “Skills” being at “Naturalization” level and “Attitude” being at “Characterization” level.

We hear from all corners that “Education has to be Outcome Based”.

What are these outcomes?

Approach

Keywords (Components of Education)

Traditional Approach

Physically Fit

Psychologically Fit

Spiritually Fit

Outcome Based Approach

Knowledge (K)

Skills (S)

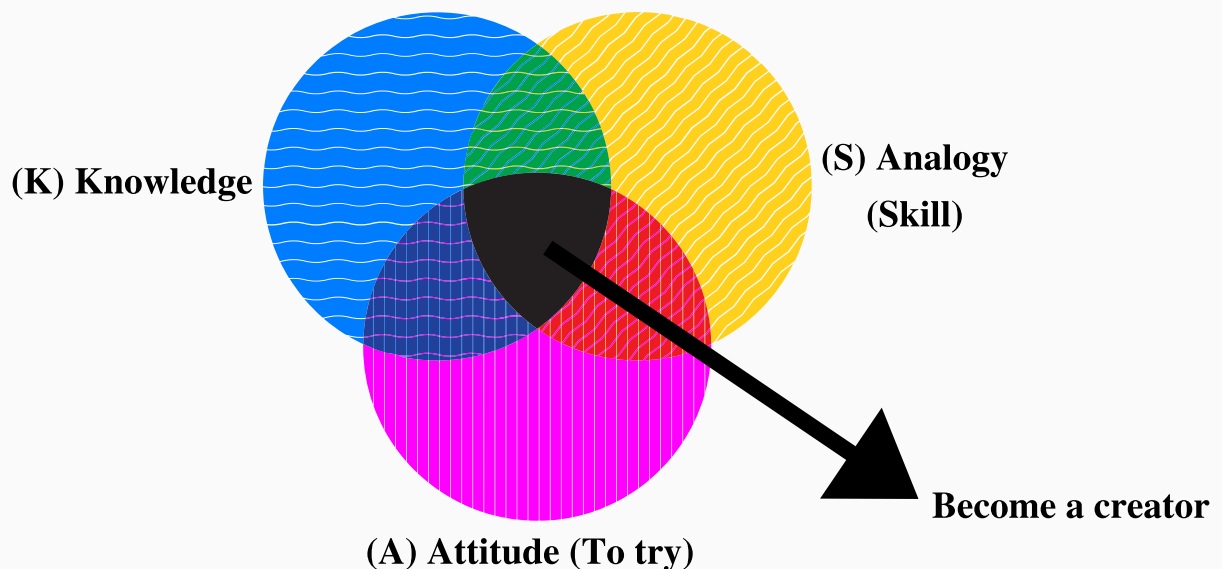
Attitude (A)

Example of Albert Einstein:

(K) Had in-depth knowledge in physics.

(S) Had the power of ANOLOGY to relate and use knowledge from one area to another area.

(A) Had a desire to try, try and try.



OBE is all about giving the right kind of academic experiences through audio, visual and kinaesthetic (hands-on) approaches to enable and ensure that the predetermined “Knowledge, Skills and Attitude” related to the “domain” for which the learner is being trained for is attained. All concepts are wonderful as there is scientific evidence that it will work. Concepts became reality only through systems. Putting in place a simple but non-compromising system will enable to achieve the predetermined outcomes with considerable ease.

The entire OBE approach banks on the philosophy – “Assessment Leads to Learning”. An assessment system that does not bend to emotions will pave the path to attain outcomes.

The major challenge in successful implementation of OBE is changing the attitude of faculty who are having lack of training in OBE and attitude to towards reforming the higher education. Despite the stringent measures taken by NBA, many of the institutions are not implementing in the true spirit of OBE. Therefore, it is very essential to build a system to train the faculty members and provide necessary infrastructure to implement the OBE uncompromisingly. This will guarantee the true attainment of Teaching-learning outcomes and documenting sensible information to adapt new and relevant Teaching-learning methods to make this system as a closed loop.

“You are what you repeatedly do. Excellence, then is not an act, but a habit” – ARISTOTLE. OBE approach can be made as a habit through a vibrant system. “SYSTEM” matters for “OBE”, for that matter “For anything and everything”.

**Education
is not
the filling of a bucket,
but
the lighting of a fire**

- W.B.YEATS



DEFINING INTENDED LEARNING OUTCOMES (ILOS) IN OBE



Dr.N.Shanthi,
Professor,
Department of Computer
Science and Engineering,
Kongu Engineering College,
Erode, Tamilnadu.

Introduction

In outcome based education (OBE) system, defining an intended learning outcome (ILO) is a challenging and interesting task. ILO should describe what students should know or be able to do at the end of the course as a result of learning experience. It should speak on students' performance. ILOs describe what a student is expected to know, understand and be able to demonstrate after the completion of the learning (Vlasceanu, Grunberg & Parlea, 2007).

Characteristics of ILO

ILOs should be defined with a set of fixed characteristic. These characteristics give an answer for the question, "What is the need of taking a particular course by a student?". These characteristics will be reflecting: knowledge, skills and attitudes (KSA), focusing: the results of the learning experiences, reflecting: the expected end of the learning experience and representing: the minimum performances that should be achieved by students.

Defining ILO

Generally, the ILOs will be started with at the end of the course, students will be able to... and continued with choosing of an action verb that describes what can students do at the end of the course. A four step procedure is normally followed by the experts to define learning outcomes. They are of, deciding the purpose of learning outcome, Identifying the content, Selecting the appropriate verb and Ensuring the clarity.

Using Bloom's Level in defining ILO

Defining learning outcomes is being carried out using multiple levels of cognition based on revised Bloom's Taxonomy (Krathwohl, 2002). The Bloom's Taxonomy plays a vital role which ranges from lowest order of remembering to highest order of creating.

- Remembering: Students can recall the relevant information from their long-term memory
- Understanding: Students can determine the meaning of instructional messages, including oral, written and graphic communication
- Applying: Students can use or apply a procedure in a new situation
- Analyzing: Students can break a system into sub-systems and detect how these sub-systems are related to one another and to an overall structure
- Evaluating: Students can make a judgment based on a set of criteria and standards
- Creating: Students can assemble the known elements together to form a novel product

Empowering Students Through Outcome Based Education

Outcome Based Education

Outcome-Based Education (OBE) is currently being implemented at a fast pace at Engineering colleges in India. It is seen as a giant leap forward in developing India's technical education and making Indian Engineers compete with their global counterparts. OBE is a student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills and attitudes. The required knowledge and skill sets for a specific engineering degree is predetermined in the OBE model and students are evaluated during the program.



Ways of Empowerment

The OBE will enable student community to receive knowledge from global sources and broadcast the ideas for global audience. It will create a challenging environment where students can apply their knowledge and find the solutions for the problems. The OBE is a way to empower student community towards these goals. Students can be empowered on two key areas:

- achieving the learning outcomes and
- achieving soft skills learning

For achieving learning outcomes, knowledge, practical skills, thinking skills, communication skills, societal skills, professional ethics, lifelong learning and leadership skills are to be developed.

Dr. A. Amsaveni

Professor

Department of

Electronics and Communication Engineering

Kumaraguru College of Technology

For the development of soft skill learning, critical thinking and problem-solving skills, decision making skills, analytical skills, teamwork, professionalism and morality skills, information management and entrepreneurial skills are to be enhanced.

An open forum for students may be created to collect their requirements and opinions which should be a constructive feedback system. Based on the collected constructive feedback, they should be involved in the development of student-directed/student-centric curriculum design. This will help students to have a power of ownership over the learning. New learning opportunities can be created by implementing various innovative teaching-learning pedagogical approaches.

Another important thing in empowering students is to minimise the gap between the learning in the class room and what they see in the real world. It indicates that the practical skills of students should be improved through which empowerment will happen naturally.



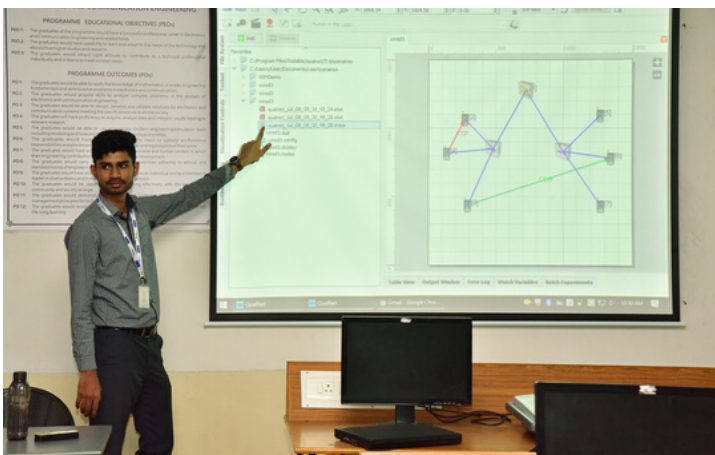
DEPARTMENT EVENTS

Junior Einstein Track – IEEE



Workshop on QualNet V 7.4 Software

A workshop on “QualNet V 7.4 Software” was organized on 08.07.2019. Mr. P. Shayan, Software Engineer, Nihon Communication Solutions Pvt. Ltd, Bangalore handled the hands on sessions. The workshop was co-ordinated by Ms. Shiji Shajahan, Assistant Professor of the department. The training programme covered a brief introduction of QualNet Software, its Applications and experiments based on QualNet library.



An International Project Competition exclusively for the school students of age 12–17 years was organized by IEEE Madras Chapter and IEEE Students Branch of Kumaraguru College of Technology in association with Rotary Club of Coimbatore-West on 20.07.2019. The challenge was conducted to recognize the best social innovation application on the theme “Preparing for future: Sustainable Transformative Technologies”. Around 71 students comprising of 25 teams participated in the Preliminary Round Project Competition. Among the 25 teams, 15 teams were selected for grand finale. The top 4 teams were sponsored by Rotary club to travel for finals at Stanford University, Thailand. The event was co-ordinated by Dr.Ramalatha Marimuthu, Professor of the department and her team.

All India Seminar



Two-Day IEI Sponsored "All India Seminar on Artificial Intelligence: An Application Perspective" was held from 05.09.19 to 06.09.19 in the department. Many research papers were presented by the students from host institution and other institutions. The event was co-ordinated by Dr.S.Sasikala, Associate Professor and Mr.D.Allin Joe, Assistant Professor of the department. The first day technical session on "AI and Machine Learning Demystified" was delivered by Prof.Vijay Krishna Menon, Amrita Vishwa Vidyapeetham University, Coimbatore. Technical session on "Deep Learning for Computer Vision Using Python" was delivered by Mr.Vishwanathan, Assistant Professor, Department of Electrical and Electronics Engineering, Kumaraguru College of Technology. Second day technical session on "Significance of Artificial Intelligence" was delivered by Dr.S.N.Shivappriya, Assistant Professor, Department of Electronics and Communication Engineering, Kumaraguru College of Technology. In the final session, Mr.Ruthrakumar, Application Engineer, Axis Global Automation Group of Companies gave a technical talk on "AI Robots".



Department Association Inauguration



Department student association inauguration was held on 04.09.19. Mr. Suresh Augustine, Deputy General Manager of Robert Bosch Engineering and Business Solutions, Bangalore inaugurated the association and addressed the gathering. Shri. Shankar Vanavarayar, Joint Correspondent of Kumaraguru College of Technology delivered the presidential address.

DEPARTMENT EVENTS

ONE CREDIT COURSE

One credit course on “Internet of Things using CC3200” was conducted from 21.09.2019 to 22.09.2019. It provided useful insight and hands-on-training on the use of Embedded System Design using CC3200. This course was handled by the technical experts Mr.Prabhakar, Mr.Karthikeyan and Mr.Prasanna from STEPS Knowledge Pvt. Ltd. Coimbatore. The event was co-ordinated by Dr.M.Bharathi and Dr.A.Amsaveni, Professors of the Department.



PASSPORT AWARENESS PROGRAM

Ministry of External Affairs, Government of India has initiated a program exclusively for the benefit of students in the year 2016 in the name of "Student Connect Program" to make the students aware of Passport related matters. In this regard, the department conducted the Passport Awareness session to students and staff of ECE and Mechatronics Engineering Departments on 25.09.2019. Ms. Uma Murali and team from Passport Seva Kendra, Coimbatore visited the campus and helped the students and staff to apply for passport online. The event was co-ordinated by Dr.A.Amsaveni, Professor of the Department. .

Congratulations

Dr.S.A.Pasupathy, Head of the Department and his team members Mr.S.Karthik (ECE), Mr.M.Ramesh Kumar (Mech), Mr.P.Anush (MCE) and Mr.R.Karthikeyan (ECE) received a project funding of Rs. 89.67 Lakhs from Ministry of Electronics and Information Technology (MeitY) for the project entitled "Development of Autonomous Multipurpose Agricultural Robotic Platform". CDAC - Kolkata is the nodal implementation agency of this project whereas IIT - Kharagpur and BIRSA Agricultural University, Ranchi are the other participating agencies.



(Left to Right) - Mr.S.Karthik, Mr.R.Karthikeyan, Dr.Hena Roy (CDAC), Dr.S.A.Pasupathy, Dr.Sambhunath Karmakar (BIRSA Agricultural University), Mr.M.Ramesh Kumar

Social welfare initiative



Dr.Ramalatha Marimuthu, Dr.M.Alagumeenaakshi, Mr.R.Navaneethakrishnan, Mr.S.Kanagaraj and Mr.A.Suresh organized two-day workshop on "Rehabilitation for Sustainable Future of Delta Farmers" from 26.08.19 to 27.08.19 in Thanjavur.

Faculty Awards

TEACHERS' DAY CELEBRATIONS-2019



Prof.K.Ramprakash receiving
"Best Faculty-Alumni Connect"
Award



Dr.S.Sasikala, Associate Professor
receiving Award of Best Faculty for
Domain Expertise, Best Faculty -
Professional Development



Mr. R. Karthikeyan, Assistant Professor
receiving Engal Aasan Award,
Award of Merit - Teaching,
Award of Merit - Student Development



Ms.Shiji Shajahan, Assistant Professor
receiving Award Best Faculty- Extra
Curricular award



Mr. V. P. Ajay, Assistant Professor
receiving Award of Merit - Teaching,
Award of Merit - Innovative Technology
Transfer

Faculty Activities

Dr.M.Bharathi, Dr.A.Amsaveni, Dr.S.Sasikala published a paper on "OFDM for improving the performance of THZ channel" in Journal of Infrared and Millimeter Waves, Vol. 38, Issue 3, July 2019.

Dr.M.Alagumeenaakshi delivered a guest lecture on "LoRa - Wireless communication Technology for IoT and M2M applications" on 19.08.19 at PSNA College of Engineering and Technology, Dindigul.

Dr.S.N.Shivappriya delivered a guest lecture on "Recent trends in Digital image segmentation and representation" at Mahendra Institute of Technology, Namakkal on 21.08.19.

Dr.M.Bharathi, Dr.M.Shanthi, Ms.R.Hemalatha, Mr.S.Arun Kumar and Mr.R.Darwin attended one week TEQIP III Sponsored Faculty Development Program on Automotive Embedded Systems from 10.06.19 to 16.06.19 at PSG College of Technology, Coimbatore.

Dr.S.N.Shivappriya, Mr.K.Thilagavathi, Ms.K.Jasmine, Ms.V.Uma Maheswari attended Two-Week AICTE Sponsored Faculty Development Program Artificial Intelligence Techniques in Data analytics and Information Retrieval from 03.06.19 to 16.06.19 at Bannari Amman Institute of Technology, Sathyamangalam.

Ms.K.Anusha and Ms.K.Karthika attended Five-Day Summer course on "Antenna Trends" at Anna University, Chennai from 01.07.19 to 05.07.19.

Mr.S.M.Chandru, Mr.Arun Kumar attended Two-Day Workshop on Machine Learning-Hands on with Python / MATLAB organized by The Knowledge Resource Centre (KRC) at CDAC Trivandrum from 05.07.19 to 06.07.19.

Dr.M.Bharathi attended One-Week High Intense Hands on Program on MATLAB for Image Processing, Computer Vision and Deep Learning from 06.07.19 to 12.07.19.

Faculty Activities

Dr.K.Kavitha, Dr.S.Sasikala, Dr.Shivappriya, Mrs.K.Thilagavathi, Ms.A.Kalaiselvi and Ms.Dhivapraba attended Two-day Industry Conclave and Hands on Workshop on Deep Learning at PSG College of Technology, Coimbatore from 09.08.19 to 10.08.19.

Ms. Shiji Shajahan attended Five-Day AICTE-MARGDARSHAN Sponsored FDP on "Modern Techniques for Wireless Communication Networks and Signal Processing" at National Institute of Technology, Tiruchirappalli from 19.08.19 to 23.08.19.

Prof.K.Ramprakash, Dr.K.Kavitha, Ms.K.Thilagavathi, Mr.R.Darwin and Ms.K.Jasmine attended One-Day Keysight Academia Symposium 2019 at Radisson Blu Hotel, Coimbatore on 20.08.19.

Dr.A.Amsaveni and Ms.K.Anusha attended AICTE Sponsored short term course on "Electromagnetic Metamaterials: Microwave- Infrared-Optical Applications" at IIT Kanpur from 19.08.19 to 23.08.19.

Ms.S.Krithika attended TEQIP III Sponsored One Week Faculty Development Programme on Cyber Security from 26.08.19 to 30.08.19 at Government College of Technology, Coimbatore.

Dr.Ramalatha Marimuthu, Dr.M.Alagumeenaakshi and Mr.R.Navaneethakrishnan organized and attended Two-Day International Project Competition and Maker Fair from 07.09.19 to 08.09.19 at Bangkok, Thailand.

Ms.S.Krithika attended IEEE Photonics Society Sponsored Three-Day National Seminar cum Workshop on "Frontiers in Photonics and Optical Communication" from 24.09.19 to 26.09.19 at Saveetha Engineering College, Chennai.

...EXPERIENCE SPEAKS...

Mr. Arun Karthick Manoharan

ALUMNUS - 2003-07 Batch
Group Product Manager - Adobe
San Jose - California



When I was a student, 10 years ago, pursuing bachelors in Electronics and Communication Engineering at Kumaraguru College of Technology, I always thought the only career path for an engineer is to work in the core areas or also be an avid coder in an IT company. While it's very important to have technical chops there are many different career paths in the industry. With an engineering background anyone can crack into and be successful in any of the following tracks be it a Product Manager, Product Marketing manager, Technical Consultant etc. I should also say it's not easy but it's totally possible and within reach if you do the following.

Getting yourself familiar with various roles in the industry, getting someone to mentor you and guide you, reading various blogs, books and researching on the domain topics and be proficient with products, processes in your domain. To be fair I considered my final year project as a checkbox to get the grade and graduate. I think it's a great opportunity to practice building a product vision, business case, user personas, use cases and finally the minimally viable product you almost get all the experience of a startup entrepreneur.

FACULTY OF THE ISSUE



Mr.R.Darwin

Mr.R.Darwin has completed his PG Degree in Communication Systems specialization from Kumaraguru College of Technology in the year 2009 and started his career as Lecturer at Kumararguru College of Technology in the same year. In his career he has taken various responsibilities at departmental and institutional level and currently he is holding the responsibility of faculty coordinator for student association and placement coordinator of the department. He has published 14 papers in the SCOPUS indexed and referred International & National Journals in Antenna Design and Networking domains. He holds the Licence to establish, maintain and work an Amateur Wireless Station in India (Call-Sign: VU3DRW). He received an award of "Excellence in Teaching" for the academic year 2017-2018 from the institution. His area of interest include RF and 5G Technology (Massive MIMO).

Student of the issue

Ms.Selvi, Final Year ECE



"Change is the only thing that doesn't change...! Never thrive for an example; Build you up and you be the one...! These girders supported my bridge of development to the zenith" flows as a stimuli from the hearts of "Ms. Selvi"



"Individual interest, persistence, determination and my seniors support are the driving forces for my journey"



Ms.Selvi got evolved from a Coimbatore based school with 98.5% and 95.8% of marks in SSLC and HSC respectively. As an opportunistic, sincere, versatile, responsible, passionate and an ambivert by nature, she moulded her journey with a different dimension after venturing into KCT. She was the co-lead of Expert's Committee at Ré-Research cell of KCT; Vice President of SEDS KCT (A chapter of SEDS INDIA); An Active member at Rotaract club of KCT, KCT NSS, RRC, VBC and Tamil Mandram and a part of Yugam events Core Team. She is leading Explore Education at Ré and she is the finance lead of Nithilam (Tamil research forum in KCT). She was a Super60ian of KCT and Fantastic 40ian of ECE Department. She led the Swatch Bharat Summer Internship team in June 2018 and took the first in the college and have stroked the KCT Achievers Award for "Best Volunteer" of the year 2017-2018 and consistent MGS Awardee of past three years. She was awarded with a title of "Best leader of SEDS KCT" for the year 2018.

Ms.Selvi is a member of Leadership council being the first woman president of ECE Department. She has attended the VIKASA YOUTH LEADERSHIP RETREAT at RISHIKESH representing Kumaraguru Institutions in December 2018. She has presented a paper "Space Radiation Shielding using Highly Hydrogenated Materials" at Indian Space Conclave in VIT, Vellore and "Vehicle to Vehicle Communication using LiFi" at ISTEM (International Conference on Science Technology Engineering and Mathematics) in KCT, Coimbatore. Her project on "Intelligent Monitoring of Hydroponic Plant Production System" went through two screening processes of Viswakarma Awards-2018. She has participated in Icamp (72 hrs Hackathon and Grant Proposal writing workshop) at Forge. She is the social media handler of Lifeatkct (An Institutional page). She has now been placed at Robert Bosch Engineering and Business Solutions Private Limited with her consistent and everlasting passion towards Engineering.

Alumnus of the issue...



Mr.N.Sureshkumar

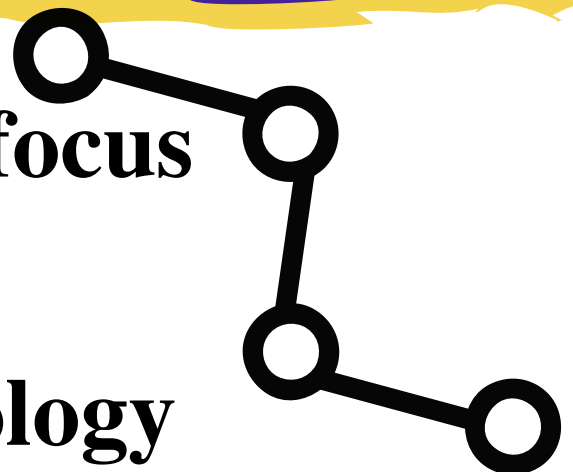
Alumnus
1990-94 Batch

Co-founder and Director,
Annet Systems Pvt. Ltd.,
Bangalore

Mr. Sureshkumar completed his bachelor of Engineering in Electronics and Communications Engineering from Kumaraguru College of Technology and has twenty five years of experience in system integration, pre-sales and software testing. He has diverse exposure from startups to multinationals in USA. He involved in R&D work of optical networking products of Nortel, Canada, Lucent Technologies, Bell-Labs USA, Mobile communication products of Airvana, USA and Casa Systems USA. He is currently the co-founder and director of An net Systems Private Limited, Bangalore providing consultancy services to Casa Systems, USA in the Asia Pacific region for pre-sales, post sales and systems engineering role for various fixed wireless and mobility products of Casa Systems and travels around the world for this purpose. He is married to Praveena Srinivasan, the co-director of An net Systems Private Limited and blessed with two multi-talented daughters, Nethraand and Anantya. After 17 years in USA, he is presently located in Bangalore with his family.

Announcement

**The next issue will focus
on
Blockchain Technology**





KUMARAGURU
college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Department Vision

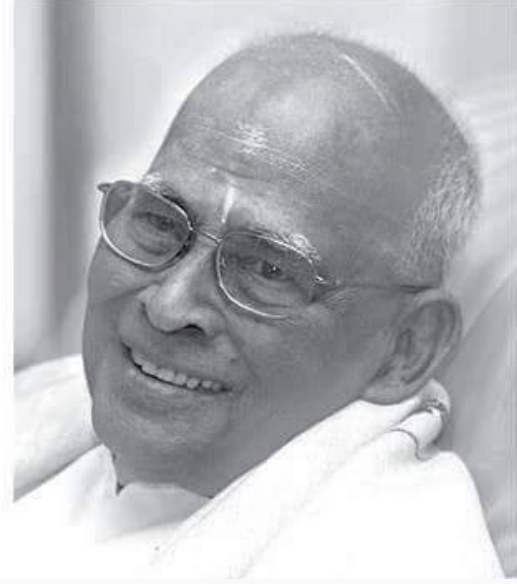
To be a centre of repute for learning and research with internationally accredited curriculum, state-of-the-art infrastructure and laboratories to enable the students to succeed in globally competitive environments in academics and industry.

Department Mission

- Motivate students to develop professional ethics, self-confidence and leadership quality.
- Facilitate the students to acquire knowledge and skills innovatively to meet evolving global challenges and societal needs.
- Achieve excellence in academics, core engineering and research.



வணங்குகிறோம் வழிநடப்போம்
உங்கள் வாழ்க்கை - எங்கள் பாதை



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FOR SHARING ARTICLES/SUGGESTIONS, PLEASE CONTACT

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