CHRONICLES ECE

Magazine

2020-21

ABOUT THE INSTITUTION

Sri Ranganathar Institute of Engineering and Technology (SRIET) came into existence in 2011, out of an ardent desire of Dr. V. Narayanasamy to contribute manifold to the society that nurtured him. SRIET is an Innovative Educational Institution where the curiosity, creativity and intellectual joy of students all drive to academic excellence. Our Institution provides complex problem-solving skill and imbibes service to the public good. SRIET is defined by strong association and working in ways that excel in traditional boundaries.

SRIET's academic excellence is rooted in a student-centered model of learning. The Curriculum is an accurate approach to education that pushes the students to be creative thinkers, intellectual risk-takers and entrepreneurial problem-solvers. SRIET leaves students prepared to thrive as independent and innovative leaders and equipped with the tools they need to become the next generation of leaders in their respective fields.

VISION

To be a unique Institution that enables students to become contributing Humans towards technology, business and sustainability of natural world.

MISSION

Our mission is to facilitate students with harmonious teaching and experiential learning by integrating industrial and societal needs with curriculum, providing requisite infrastructure facilities and imbibing ethical values

ABOUT THE DEPARTMENT

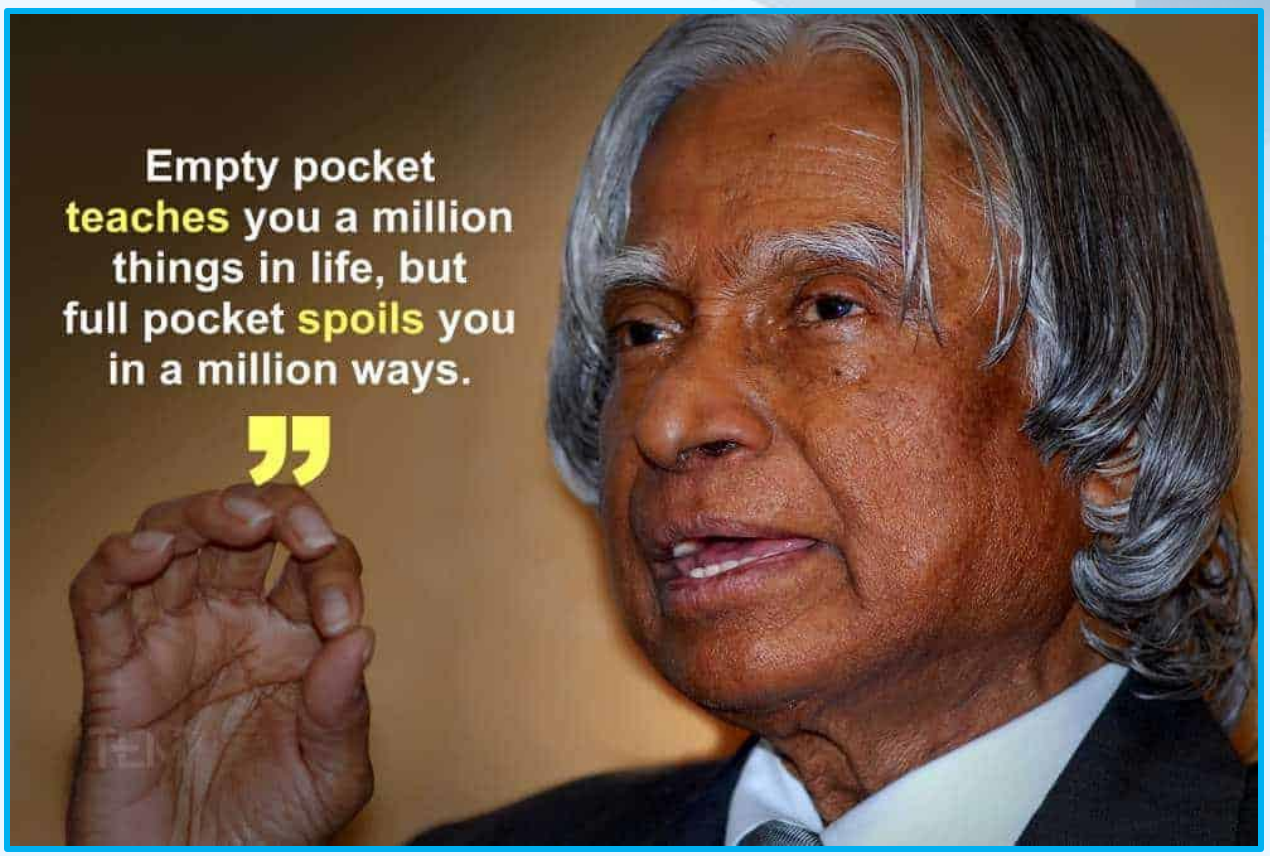
Electronics and communication engineering synthesizes science, mathematics, technology, and application-oriented designs into world-class consumer products, timely microprocessors, state-of-the-art computers, advanced electronic components, and much more. From cutting-edge technology revolutions to real life applications, the innovations of electrical engineers continue to lead the future and elevate the standards in the marketplace. With a shortage of electrical engineering talent in the job market, the demand for graduates with an electrical engineering degree remains at an all-time high.

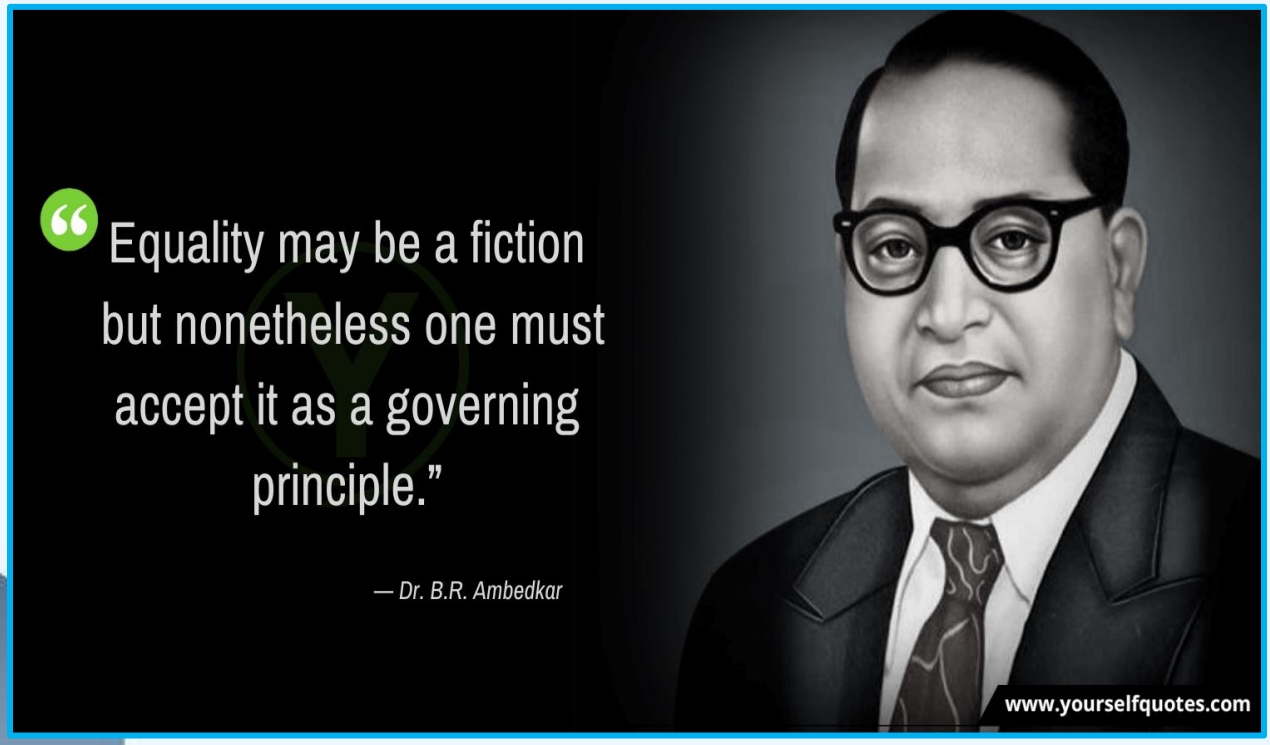
VISION

To be a center for Excellence in Electronics and Communication Engineering by fostering Professional Competence with ethical values.

MISSION

- To embrace innovative teaching and learning methodologies that lead to the self improvement of students.
- To embed contemporary technical knowledge and problem solving skills in core and allied field by having collaboration with industry.
- To enhance the competency of students to meet the challenges posed in industry on employment through research and innovative ideas.
- To enlight our students with ethical, human values and leadership.


Empty pocket
teaches you a million
things in life, but
full pocket spoils you
in a million ways.


“Equality may be a fiction
but nonetheless one must
accept it as a governing
principle.”
— Dr. B.R. Ambedkar
www.yourselfquotes.com

Energy Conservation of Adiabatic ECRL-Based Kogge-Stone Adder Circuits for FFTApplications

Abstract:

Low Power circuits play a significant role in designing large-scale devices with high energy and power consumption. Adiabatic circuits are one such energy-saving circuits that utilize reversible power. Several methodologies used previously infer the use of CMOS circuits for reducing power dissipation in logic circuits. However, CMOS devices hardly manage in maintaining their perfor mance when it comes to fast switching networks. Adiabatic technology is employed to overcome these difficulties, which can further scale down the dissi pation of power by charging and discharging. An Efficient Charge Recovery Logic (ECRL) based adiabatic technology is used here to evaluate arithmetic operations in circuits like inverter, full adder, Carry Look-Ahead adder etc. A bet ter chance at reducing delay in digital circuits is illustrated by developing a Kogge-stone Adder, built using the ECRL technology. The developed circuitry is further integrated into a Fast Fourier Transform (FFT), which demonstrates the circuit's enhancement into DSP applications.Not only does this design reduce delay in VLSI switching circuits, but also narrows the power dissipation down to a mini mum. This technique proved superior to the existing PFAL technique by demon strating almost 10% less power dissipation with minimal propagation delay. All the circuits have been simulated at 45 nm technology using the Tanner EDA tool.Keywords: Fulladder;ECRL;carrylook-aheadadder;kogge-stone;multiplexer;FFT

Conclusion

This paper reports on the energy conservation of ECRL-based Kogge-stone adder circuits for DSP applications like Fast Fourier Transform (FFT). By utilizing minimum transistors and designing full adder and Carry Look-Ahead adder circuits using ECR logic, a reduced power dissipation was obtained in the range of nanowatts (nW). This adiabatic technology employs recharging functionality and develops an effective power dissipation factor. This methodology decreases the propagation delay in fast switching circuits, as a result of which the device becomes even cost economic. A multiplexer is also designed with the carry look-ahead adder, which benefits from variable adder length, making the number of multiplexer stages to a minimum. Comparison is performed for the proposed inverter, ripple carry adder, full adder and carry look-ahead adders with their corresponding CMOS based circuits. The comparison depicted a much-reduced power dissipation from the adiabatic logic, which makes it a compatible device and core contender for high-performance DSP applications like modem concentrators, cellular base stations etc. A Finite Fourier Transform (FFT) architecture is constructed using the KSA structure with the help of a Radix 4 format. Minimal power dissipation of 6.0038 nW is attained for the proposed design with a reduced propagation delay of around 3 ns

Mr.P.Dhilipkumar
Assistant Professor

EVENT CONDUCTED BY ECE

The department of ECE conducted a Webinar on "**Blockchain Technology introduction and Use Cases**" On 09th July 2020 the webinar was presented by Dr.L.Lalitha, Professor/CSE-KCT .

The department of ECE conducted a Webinar on "**Opportunities and Research challenges in Industrial Instrumentation**" On 03th October 2020 the webinar was presented by Mr.P.Gopinath, Senior Engineer, Wasco Engineering.

The department of ECE conducted a Webinar on "**Research Issues in Optical Communication**" On 17th October 2020 the webinar was presented by Dr.T.Kavitha, Professor/ECE Veltech , Chennai.

The department of ECE conducted a Webinar on "**Biological Effects due to Advancement in Wireless Communication Technology**" On 17th February 2021 the webinar was presented by Dr.S.Palnivelrajan, Associate Professor/ECE, M.Kumarasamy College

CHRONICLES-ECE

The department of ECE conducted a Webinar on "**Guidance in Career Self Structure**" On 16th October 2020 the webinar was presented by Mr.M.Arun karthikeyan, SeniorConsultant, FIS Solutions.

The department of ECE conducted a Webinar on "**Wearable Devices in Healthcare Technology**" On 21th October 2020 the webinar was presented by Dr.C.Ramkumar, AP/BME NGPIT.

The department of ECE conducted a Webinar on "**Fundamentals of Radar and its Applications**" On 03th November 2020 the webinar was presented by Dr.S.Mohandass, AP/ECE, PSG College of Technology.

The department of ECE conducted a Webinar on "**Microwave filter Design**" On 29th October 2020 the webinar was presented by Dr.C.Rimmya, AP/ECE, MIT Campus, Anna University,Chennai.

The department of ECE conducted a Webinar on "**Demystifying Modern Electronics and its Job Market**" On 14th October 2020 the webinar was presented by Mr.Balaji Seshadri, Technologist, Surabee Electronics

The department of ECE conducted a Webinar on "Innovation and Challenges on Covid related Issues for Budding Electronics Engineers" On 23th February 2021 the webinar was presented by Dr.S.Mythili,Professor, Dept.of ECE, PSNA College of Engineering and Technology,Dindigul.

The department of ECE conducted a Webinar on "Biosensors and their Applications in Healthcare" On 06th March 2021 the webinar was presented by Dr.P.Sutha, Assistant Professor, Department of Bio Medical Engineering, PSNA College of Engineering and Technology, Dindigul.

The department of ECE conducted a Webinar on "Mind and Memory Enhancement Techniques" On 05th March 2021 the webinar was presented by Mr.S.Meenakshi Sundaram, Assistant Head Master Govt.Hr.Sec.School, Coimbatore.

The department of ECE conducted a Webinar on "Communication Skills for occupational competence" On 14th May 2021 the webinar was presented by Mr.M.Pranavasree, Director, Anglospeak Education, Coimbatore.

The department of ECE conducted a Webinar on "Deep learning Networks in Practical Application" On 02th March 2021 the webinar was presented by Dr.V.Sathieshkumar, Assistant Professor, MIT Campus, Anna Universtiy, Chennai.

The department of ECE conducted a Webinar on "IT Connect with Modern Industry" On 15th May 2021 the webinar was presented by Mr.K.Saravanakumar, Senior Software Developer, Aparajitha Corporate Services Pvt Ltd.

MOU SIGNED BY ECE

Department of ECE MoU signed with Sri Durga Devi Fettling, 5/l8lA, Karegoundanpalayam, Annur, Coimbatore-641697 on 17th March 2021 and conducting Functional Activity in Webinar on PCB Design.

Department of ECE MoU signed with Vajram Industrial Products, SF NO.30/l A, Nadupalayam Road, Pattanam, Coimbatore-641016 on 11th January 2021 and conducting Functional Activity in Webinar on Deep Learning Networks in Practical Applications.

STUDENT ARTICLE

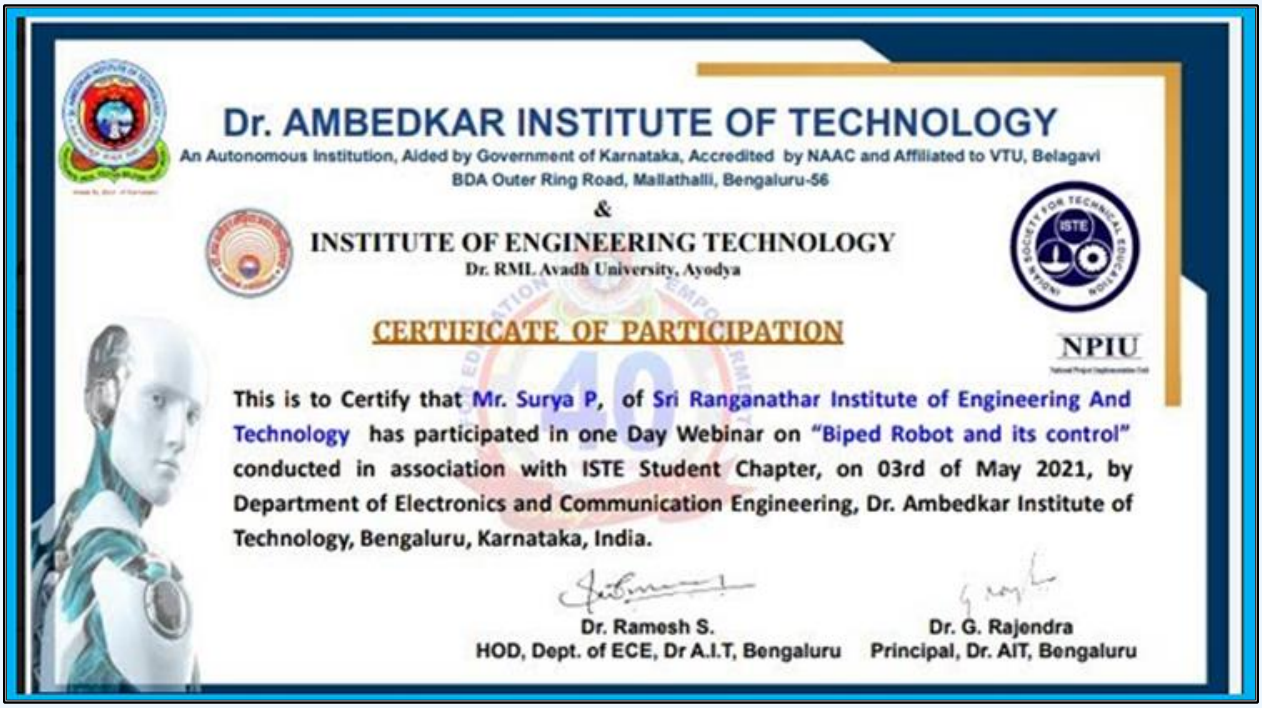
Artificial Intelligence

"Artificial Intelligence (AI) revolutionizes industries worldwide. It employs algorithms mimicking human cognition to perform tasks ranging from data analysis to autonomous decision-making. AI enhances efficiency, accuracy, and innovation across diverse sectors, including healthcare, finance, and transportation. Through machine learning and deep neural networks, AI systems continually evolve, learning from vast datasets to improve performance. However, ethical concerns arise regarding data privacy, bias, and job displacement. As AI advancements accelerate, collaboration between policymakers, technologists, and ethicists becomes imperative to ensure responsible AI development. With its potential to reshape societies fundamentally, AI remains a dynamic force driving the future of technology and human progress."

- R.S.Brindha (ECE-II Year).

STUDENT ACTIVITY

Event Outside State



Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY

An Autonomous Institution, Aided by Government of Karnataka, Accredited by NAAC and Affiliated to VTU, Belagavi

BDA Outer Ring Road, Mallathalli, Bengaluru-56

&

INSTITUTE OF ENGINEERING TECHNOLOGY

Dr. RML Avadh University, Ayodya

CERTIFICATE OF PARTICIPATION

NPIU

This is to Certify that Mr. Surya P, of Sri Ranganathar Institute of Engineering And Technology has participated in one Day Webinar on "Biped Robot and its control" conducted in association with ISTE Student Chapter, on 03rd of May 2021, by Department of Electronics and Communication Engineering, Dr. Ambedkar Institute of Technology, Bengaluru, Karnataka, India.

Dr. Ramesh S.
HOD, Dept. of ECE, Dr A.I.T, Bengaluru

Dr. G. Rajendra
Principal, Dr. AIT, Bengaluru

Keerthana R attended a Workshop in MIT College of Railway engineering and Research,Barshi, Maharashtra on 14th May 2020 to 17th May 2020.

Dayana K attended a Workshop in Bansal institute of technology, Bhopal on 15th June 2020.

Surya.P attend a webinar and get certificate in Dr. Ambedkar Institute of Technology, Karnataka on 24th April 2021.

International Conference

Deepika S participated in international conference at Karpagam institute of technology on 26.03.2021 27.03.2021

Priyanka M A participated in international conference at Karpagam institute of technology on 26.03.2021 27.03.2021.

Arthie A participated in international conference at Karpagam institute of technology on 26.03.2021 27.03.2021.


Theni Melapettai Hindu Nadargal Uravinmurai

Nadar Saraswathi College of Engineering and Technology

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

Annanji (Po), Vadapudupatti, Theni – 625531.

3rd International Conference on

NEW SCIENTIFIC CREATIONS IN ENGINEERING AND TECHNOLOGY

"ICNSCET – 2K21"

CERTIFICATE

This is to certify that **Mr.R.Subash – UG student, Department of ECE** of Sri Ranganathar Institute of Engineering and Technology has participated/presented a paper titled Smart Medicine Reminder Box using Audio System in 3rd International Conference on "New Scientific Creations In Engineering and Technology" through Virtual Mode Organized by Nadar Saraswathi College of Engineering and Technology on 19th March 2021.

Dr.R.Athilingam- HOD/ECE Head of the Department | Dr.C.Mathalai Sundaram Principal | Mr.A.Rajkumar Joint Secretary | Mr.K.S.Kasi Prabhu Secretary

R.Subash participated in international conference at Nadar Saraswathi College of Engineering and Technology on 19.03.2021.

Project Expo

Priyanka IV year ECE has presented Poject Expo project tittle "Intelligence monitering system for nucleur power plant using wireless embedded sensor for human safety " at SRIET on 9th April; 2024

Deepika IV year ECE has presented Poject Expo project tittle "Intelligence monitering system for nucleur power plant using wireless embedded sensor for human safety " at SRIET on 9th April; 2024

Ilakiya IV year ECE has presented Poject Expo project tittle "Intelligence monitering system for nucleur power plant using wireless embedded sensor for human safety " at SRIET on 9th April; 2024.

Arthie IV year ECE has presented Poject Expo project tittle "Intelligence monitering system for nucleur power plant using wireless embedded sensor for human safety " at SRIET on 9th April; 2024.

INDUSTRIAL VISIT

S.No.	Name of the Company	Place	Participated Batch & Year	Number of Participants	Number of Staff accompanied
1	Mag solvics	Kinathukidavu	III YEAR ECE	56	2

TOP CGPA IN II YEAR

1.SIVAGAMI.S-10.00

2.KAVIYA.G-9.75

3.LISHA-9.75

TOP CGPA IN III YEAR

1.RESHMA.S-9.52

2.SASIKUMAR-9.72

3.SRISUDHARSAN-9.52

TOP CGPA IN IV YEAR

1.ARTHIE-10.00

2.DEEPIKA-10.00

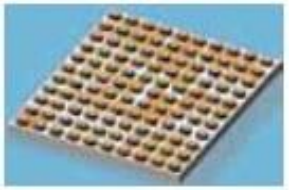
3.ISHWARYA-10.00

New Products

Computer-on-Modules:

congatec has introduced six new Computer-on-Modules with 11th Gen Intel Core processors for the extended quality components designed to withstand extreme temperature range. Built with hightemperatures from -40 degrees Celsius to +85 degrees Celsius, the new Computer-on-Modules provide all features and services required for reliable operation in the most challenging environments. Typical use cases for the modules can be found in any kind of rugged applications, outdoor edge devices, and in-vehicle installations, which are increasingly leveraging embedded vision and artificial intelligence (AI) functions. Based on the low-power Lake SoCs, the new modules for wide temperature environments offer significantly greater CPU performance and nearly 3x high GPU performance. \

Wireless-charging IC



A fast Qi wireless charging IC, the STWLC88, delivers 50W of power that enables smartphones, tablets, laptops,and other personal electronic devices to charge without cables in a safe, quick, and efficient way. With a fully integrated ultra-low impedance, high-voltage synchronous rectifier, and low dropout linear regulator, the STWLC88 achieves high efficiency and low power dissipation,which is critical for applications that are highly sensitive to unnecessary heat buildup.

Robotic gripper

Designed for low-cost gripping applications, the 2FG7 from OnRobot is easy to use, allowing employment within minutes to handle demanding payloads even in tight spaces. The 2FG7 has a maximum payload of 11kg, an external grip of up to 74mm, and a gripping force of 20-140N for handling heavy, bulky payloads with ease. The gripper is powered by an inte grated electric motor, which provides several advantages over pneumatic gripper systems. 2FG7 users can easily make force, speed, and stroke control settings through an intuitive software interface. It is ideal for low volume and high-mix production that allows fast ROI for applications such as machine tending, material handling, and assembly.

PAPER PUBLICATION

S.No	Faculty name	Paper Title	Journal Name Volume No, Month/ Year, Page Nos.	Indexed by Thompson/ Scopus etc.	Impact Factor
1.	Dr.M.Meenakumari	Obstacle Detection And Alert System For Visually Impaired people	International journal of advanced Research in Science Communication and Technology ISSN NO:2581-9429	Thompson	
2.	P.Jeyabharathi	optimal resource allocation using software defined network for wireless iot application using RBFNN	Tierärztliche Praxis ISSN NO:0303-6286	Annexure-1	

PHOTOGRAPH

A sleek shiny piece of sheet
We all keep it close to our heart,
Treasure it behind the plastic of the album,
Yeah, its a photograph, yeah its a photograph

More than a paper, its a memory we keep
With that nostalgic rain either we smile or we weep,
It reminds us about the time which is long gone,
Which made you stand here, after series of dusk to dawn

-Sasikala.R
III-year (ECE)

NPTEL Certificates

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository. https://nptel.ac.in/noc/

Roll No: NPTEL21EE31S13360695

To,
A PERIYANAN
168,EAST STREET,U.AMMAPATTY-POST,
UTHAMAPALAYAM-TALUK,THENI-DIST
THENI
TAMIL NADU - 625533
PH. NO :7502619676

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to
A PERIYANAN
for successfully completing the course

Integrated Circuits, MOSFETs, Op-Amps and their Applications

with a consolidated score of 52 %

Online Assignments | 12.81/25 | Proctored Exam | 39/75

Total number of candidates certified in this course: 131

Prof. G. L. Sivakumar Babu
Chairman, Centre for Continuing Education
Sri Bangalore

Jan-Apr 2021
(12 week course)

Prof. L. Umanand
NPTEL Coordinator
IISc Bangalore

Indian Institute of Science Bangalore

swayam

Roll No: NPTEL21EE31S13360695

To validate and check scores: https://nptel.ac.in/noc

A.Periyannan Has successfully completed the course “Integrated circuit ,MOSFET , Op – Amps and their applications “ with the consolidate score 54% on NPTEL online Certification .

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20EE98S71341313

To,
KARPAGAVALLI L
KARPAGAM,STREET,EDAICHERUVOI
AKKANUR(PO),TITTAGUDI
CUDDALORE
TAMIL NADU - 606106
PH. NO :9751755425

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to
KARPAGAVALLI L
for successfully completing the course

Introduction to Embedded System Design

with a consolidated score of 51 %

Online Assignments	21.00/25	Proctored Exam	30/75

Total number of candidates certified in this course: 1371

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Sep-Dec 2020
(12 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

Indian Institute of Technology Madras

swayam

Roll No: NPTEL20EE98S71341313

To validate and check scores: https://nptel.ac.in/noc

A.Karpagavalli Has successfully completed the course “Introduction to Embedded System Design “ with the consolidate score 51%

STUDENT ARTICLE

"The Rise of Quantum Computing: Shaping the Future of Electronics"

In 2021, quantum computing emerged as a dominant topic in electronics. Advancements in this field promised to revolutionize computation, promising exponential leaps in processing power and solving problems conventional computers couldn't touch. Articles explored the race among tech giants like IBM, Google, and startups to achieve quantum supremacy, where quantum computers outperform classical ones. Discussions revolved around the potential applications in cryptography, drug discovery, and climate modeling. While still in its infancy, the excitement surrounding quantum computing hinted at a transformative future, where the boundaries of what's possible in electronics would be pushed to unprecedented heights.

-Arthie A (IV ECE).

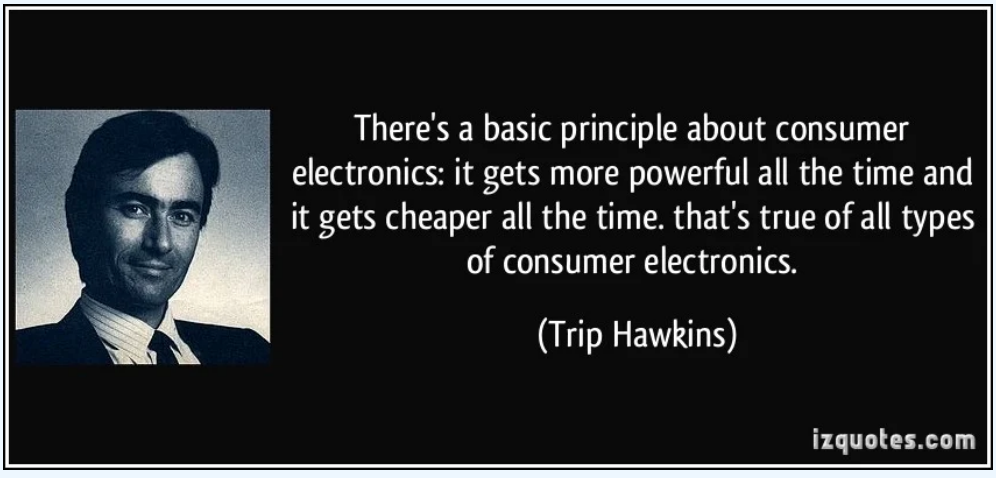
Tech News

Nasa teams up with Nokia to bring 4G LTE on Moon

NASA is planning to take a walk on the moon sometime in 2020, and it might just take Nokia's help to communicate up there. In a fresh new release, the firm has said that it will be offering Nokia a funding of 14.1 million dollars to build a 4G LTE network that could work up there. As per NASA associate administrator James Reuter, the 4G LTE network can help them communicate between lunar habitats and the astronauts when exploring the Moon's surface. "With NASA funding, Nokia will look at how terrestrial technology could be modified for the lunar environment to support reliable, high-rate communications," he said. In addition, this could also help the agency to communicate with the spacecraft.

It is worth not trying to Moon for the company has hands with Moon-based Apollo 17 network could video from the

adding that Nokia is bring 4G LTE to the first time. The previously joined Vodafone to build a LTE network for the landing. The send high-definition Moon to Earth



CHRONICLE-2020-21

EDITORIAL BOARD

Dear Readers,

We hope this message finds you well and in good spirits. It is with great pleasure and a sense of responsibility that we take a moment to reflect on the journey we have embarked upon with you, our cherished readers.

As the editorial team of this magazine, we are committed to bringing you informative, thought-provoking, and engaging content that enriches you lives and inspires you to explore the world the world around you.

Mrs.P.Jeyabharathi
HoD/ECE

Dr.M.Meenakumari
Prof./ECE

Mr.A.Periyanan
AP/ECE

Mr.S.Sabarieeswaran
IV-ECE

Mrs.S.Sugasini
III-ECE