SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

5th NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE-19)

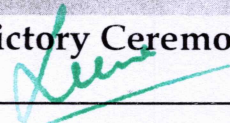### PROGRAM SCHEDULE

Time: 09.30 AM   **Date: 26/04/2019**   **Venue: Seminar Hall**

Prayer

Welcome	:	**Dr. Leena AV**, Asst Prof (Sr), CE
Presidential Address	:	**Shri. T K Rajendran**, Vice President, SBSY
Conference brief & Introduction of Chief guest	:	**Dr. V K Janardanan**, Principal
Inauguration by lighting the lamp and address	:	**Adv. Sasi Vattakkovval,** Chairman, Municipal Council, Payyanur

Releasing of Proceeding by Chief guest

Releasing of CD by Shri. C C Mohanan, Director, SBSY

Presentation of memento to chief guest by Shri T K Rajendran

Felicitation address	:	**Prof. Raveendran K**, HOD/EC
	:	**Lt. Col. C Preveen**, AO
	:	**Prof. D Sujith**, Asst Prof, CSE
	:	**Ms. Devika**, Student representative
Vote of Thanks	:	**Prof. Shilpa Valsakumar**, Asst. Prof, CE

National Anthem

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

CONFERENCE SCHEDULE

DAY 1: FRIDAY, 26th APRIL-2019

TIME	PROGRAMME
08.30 AM – 09.30 AM	Registration
09.30 AM – 11.00 AM	Inaugural Function (Venue: Seminar Hall)
11.00 AM – 11.30 AM	Tea Break
11.30 AM – 01.30 PM	Technical Session I
01.30 PM – 02.30 PM	Lunch Break
02.30 PM – 04.00 PM	Technical Session – 2

DAY 2: SATURDAY, 27th APRIL-2019

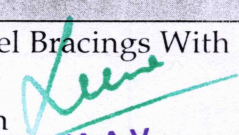| TIME	PROGRAMME
09.30 AM – 11.00 AM	Technical Session – 3
11.00 AM – 11.15 AM	High Tea
11.15 AM – 01.30 PM	Technical Session – 4
01.30 AM – 02.30 PM	Lunch Break
02.30 PM – 03.30 PM	Technical Session – 5
03.30 PM – 04.00 PM	Valedictory Ceremony

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
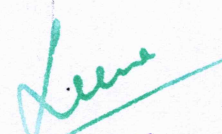PAYYANUR, KANNUR

INDEX

TRACK ID: CE

CIVIL ENGINEERING

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

INDEX

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

INDEX

TRACK ID: EEE

ELECTRICAL & ELECTRONICS ENGINEERING

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

INDEX

TRACK ID: ME

MECHANICAL ENGINEERING

INDEX

TRACK ID: ECE

ELECTRONICS & COMMUNICATION ENGINEERING
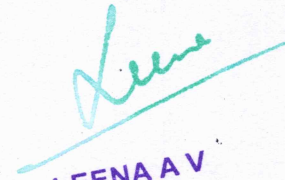
Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

INDEX

TRACK ID: CSE

COMPUTER SCIENCE ENGINEERING ENGINEERING

INDEX

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

ADVISORY COMMITTEE

NAME	AFFILIATION
Dr. P. Radhakrishnan	Director, IAS, Coimbatore - Chairman
Shri. S. Somanath	Director, LPSC, Trivandrum
Shri. P. Kunhikrishnan	Director, SDSC, Sriharikotta
Dr. S. Narayanan	Pro-Vice chancellor, VIT University
Shri. Umamaheswaran	Sc Secretary, ISRO, Bangalore
Dr. P.V. Venkatkrishnan	Director, CBPO, ISRO, Bangalore
Dr. K Vijayakumar	Former DTE Kerala
Dr. Janardhana Reddy	Dean, VIT University
Dr. C.D. Naiju	Professor VIT University
Dr. N.K. Narayanan	Principal, CE, Vadakara
Dr. N.S. Sreekanth	PTO, C-DAC, Bangalore
Dr. P. Babu Anto	CoE, Kannur University
Dr. A. Samson	Professor, CET Trivandrum
Dr. K. Jayaraj	Professor, CET Trivandrum
Dr. T.D. John	Professor , GCE, Kannur
Dr. K.M. Peethambaran	Professor , GCE, Kannur
Dr. K.A. Navas	Professor , GCE, Kannur
Dr. C. Meiaraj	Assoc. Professor, GCT, Coimbatore
Dr. B. Rajeevan	Assoc. Prof., GCE, Kannur
Dr. P. Mahesh Kumar	Assoc.Prof., GCE, Kannur
Dr. M. Shahin	Assoc.Prof., GCE, Kannur
Dr. Reeda Kunhimangalam	Assoc.Prof., CAPE, Thalassery
Dr. K.P. Vinesh	Asst. Professor, NIT , Calicut
Prof. C. Bhaskaran	Former HOD, SNGCET, Payyanur
Dr. V.K. Janardanan	Principal, SNGCET, Convenor

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

NaCTAE-2019
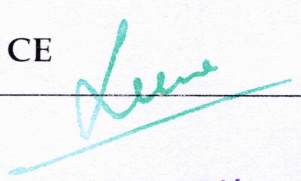
Chief Patron	Shri. K.P. Balakrishnan, President Sree Bhakthi Samvardhini Yogam, Kannur
Patron	Shri.K.P. Pavithran, Secretary Sree Bhakthi Samvardhini Yogam, Kannur
Chairman	Dr. V.K. Janardanan, Principal
Organizing Secretaries	Prof. Chandrajith E, HOD, ME Dr. Leena A.V, AP, CE Prof. Sujith D, AP, CSE
Executive Committee	Prof. K.Raveendran, HOD, ECE Dr. Susan Abraham, HOD, CE Prof. Banumathi Arunachalam, HOD, S&H Lt. Col. Preveen C, Administrative Officer Prof. O.Unnikrishnan, HOD, PE
Treasurer	Prof. Lipin K, AP, ME
Organizing Committee	Prof. Mary Sonia George B, CE Prof. Leena Narayanan, ECE Prof. Sreenith T,ME Prof. Sreeraji Narayanan, CSE Prof. Muhammed Ramees M.K.P,EEE Prof. Aswin.P, ME Prof. Nikhil M, H&S Prof. Roshni VV, ECE Mr. Dhanraj K, ME Mr. Aswin Sadanandan S6 CSE

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

EDITORIAL BOARD

Chief Editors	Dr. V.K.Janardanan, Principal
Managing Editors	Prof. K.Raveendran, HOD, ECE
	Prof. E.Chandrajith, HOD, ME
	Prof. Bhanumathi Arunachalam, HOD, S&H
	Prof. I.C. Amitha, HOD, CSE
	Dr. Leena.A.V, AP, CE
Editors	Prof. Sujith D, AP, CSE
	Prof. Aswin P, AP, ME
	Prof. Muhammed Ramees M.K.P, AP, EEE
	Prof. Prem Anand.C, AP, CE
	Prof. Sreenith T, AP, ME
	Dr. Susan Abraham, HOD, CE
	Prof. Leena Narayanan, AP, ECE
	Prof. Sreeraji Narayanan, AP, CSE
	Prof. Mary Sonia George, AP, CE
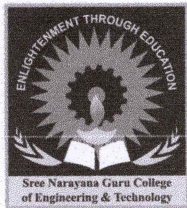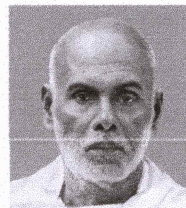
SAMPLE PHOTOGRAPHS OF NaCTAE

NaCTAE was held on 26 and 27th of April at Sree Narayana College of Engineering and Technology

Fig 1 Welcoming Adv.Sasi Vattakovil (Chairman,Municipal Council,Payyanur)

Fig 2 . Meeting in principals cabin

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Fig 3 . Visiting the campus

Fig 3. Inaugral Ceremony

Fig 4 Shri T K Rajendran ,Vice President , SBSY delivering presidential address

Fig 5 Students presenting paper

NaCTAE'19

NATIONAL CONFERENCE ON
TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

26 & 27th April, 2019

PROCEEDINGS

Organized by
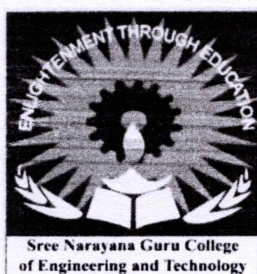
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
(PROMOTED BY SREE BHAKTHI SAMVARDHINI YOGAM, KANNUR)
CHALAKODE P.O., PAYYANUR, KANNUR – 670307, KERALA.
Ph : 04985 201987, 201988, 201989

www.sngcet.org

sngcet@bsnl.in

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

PINARAYI VIJAYAN
CHIEF MINISTER

GOVERNMENT OF KERALA

Secretariat
Thiruvananthapuram-695 001

MESSAGE

I am happy to know that the Sree Narayana Guru College of Engineering & Technology, Payyanur is conducting a National Conference on Technological Advancements in Engineering titled 'NaCTAE'

I extend my good wishes to the National Conference and to the proceedings which is being brought out to mark this occasion.

Pinarayi Vijayan

Dr. V.K. Janardanan,
Principal, & Chairman,
Sree Narayana Guru College of Engineering & Technology,
Chelakode PO, Payyanur, Kannur - 670 307.
sngcet@bsnl.in

Tel: (0471) 2333812 & 2333682 Fax: (0471) 2333489 e-mail : chiefminister@kerala.gov.in
website : www.keralacm.gov.in

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Dr. RAJASREE M.S.
VICE CHANCELLOR

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
(A State Government University)
CET Campus, Thiruvananthapuram-695 016
Kerala, INDIA

MESSAGE

It is of immense pleasure to know that Sreenarayana Guru College of Engineering & Technology, Payyannur is organizing a National Conference on Technological Advancements in Engineering – NaCTAE'19 during April, 2019.

Technological advances are very rapid and primarily dictate how engineering products and solutions are designed. Innovative engineering solutions and products will propel technological advancements. This relationship between technological advances and engineering is a very interesting and insightful topic to deliberate upon.

I am sure that the conference will provide an excellent platform for the engineering fraternity to get together and deliberate on Technological Advancements in Engineering.

I wish all success to NaCTE'19 and hope that it will be fruitful to the engineering fraternity and society at large.

20.04.2019

(Dr. RAJASREE M.S.)

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Shri K.P BALAKRISHNAN
President, Managing Committee

MESSAGE

The engineering and technology sector in India has made remarkable progress over the years and is undergoing revolutionary changes in the field of engineering and scientific research. In this context I am extremely happy that we are conducting a National Conference on Technological Advancements in Engineering in this college.

The Managing committee of the college Sree Bhakthi Samvardhini Yogam, works on the principles of the great saint Sree Narayana Guru, and I wish NaCTAE is to fulfill the noble objective of enlightening our students, which in turn is the vision of Gurudevan.

I appreciate the dedicated efforts of Principal, faculty and staff members of the college in organizing such an event to bring together the Academicians, Technocrats, Scientists, Research scholars and Students together in the same platform and disseminating the knowledge.

I wish all success for the Conference.

K.P. BALAKRISHNAN

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Shri K.P PAVITHRAN
Secretary, Managing Committee
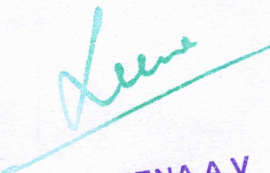
MESSAGE

The technological development in India has made remarkable progress over the years particularly in the area of engineering and scientific research and has given every Indian great moments of pride. I am very happy that we are organizing a National Conference on Technological Advancements in Engineering in the college to bring together the Academicians, Technocrats, Scientists, Research scholars and Students together in the same platform.

Sree Bhakthi Samvardhini Yogam, the managing committee of the college is working on the principles of great Saint Sree Narayana Guru, to educate and strengthen the downtrodden in the society. This National conference is being organized to fulfill the vision of the greatest philosopher-saint-poet and social reformer Gurudevan.

I appreciate the efforts of Principal, faculty and staff members of the college in organizing this National Conference.

I wish all success for the Conference.

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

K.P. PAVITHRAN
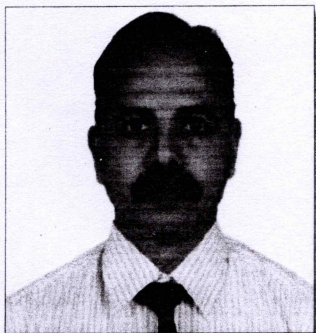
Dr. V.K JANARDANAN
Principal

MESSAGE

The scientific research and technological development in India has made remarkable progress during 2013-14, in particular the MARS mission and the successful flight of Geosynchronous Satellite Launch Vehicle with Indigenous cryogenic stage. We are extremely happy in organizing the National Conference on Technological Advancements in Engineering. National Conferences always plays an important role in disseminating the knowledge through discussions that make our students competitive to contribute for the technology in nation building. In this context, it is a great privilege for Sree Narayana Guru College of Engineering and Technology to organize this National Conference on Technological Advancements in Engineering.

I appreciate the dedicated efforts of Faculty and staff members of the college in organizing such an event to bring together the Academicians, Technocrats, Scientists, Research Scholars and Students together in the same platform and disseminating the knowledge.

I wish all success for the Conference.

Dr.V.K.JANARDANAN

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Lt Col C Preveen
Administrative officer

MESSAGE

We all are lucky to be living in one of the most interesting times as far as the technological history of the World is concerned. Today, the World is in the cusp of converging technologies like Internet of Things (IOT) and Artificial Intelligence (AI). These technologies combined with the Blockchain,3D printing and augmented reality are poised to open the flood gates of disruptive revolution in the World which will radically affect not only the gadgets and equipment, but the very way of our life and thinking. The idea of 'need based development of technology' in the yonder years has given way to the philosophy of 'technology driven aspirations' or even 'need generation by technology'. There is no scope of escaping this "techvalanche" even if someone wants to, because shark is not going to spare you just because you are a vegetarian.

In this context, the relevance of National Conference on Technological Advancements in Engineering -2019 as conducted in our College cannot be over emphasized. NaCTAE -2019 is expected to bring the best technical brains from across the Nation with sparkling ideas and the confluence of these ideas will help immensely in understanding the complete picture of the emerging technological scenario unfolding right before our eyes. I wish all the best to NaCTAE -19 and its organizers and participants. Jai Hind.

Lt Col C Preveen

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

ACKNOWLEDGEMENT

We take this opportunity to warmly welcome all the delegates for the National Conference on Technological Advancements in Engineering (NaCTAE-19) organized by Sree Naranaya Guru College of Engineering and Technology, Payyanur, Kerala during 26 & 27th April 2019.

The aim of the conference is to focus on major areas of research and development in the field of Computer Science and Engineering, Civil Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering and Mechanical Engineering by discussions and deliberations.

There has been an overwhelming response to the call for papers and we were forced to extend the submission date. Total of 125 full papers have been received from the researchers and academicians from the leading institutes and organizations all over the country. However, about 85 full papers have been selected based on the recommendations of the reviewers for presentation and inclusion in the conference proceedings. By and large these technical papers give a true account of current research and development trends in the field of all Engineering disciplines.

We heartily express deep sense of gratitude to our management, keynote speakers, Advisory committee, participants, reviewers, session chairs, organizing committee members and all those who have helped us to organize this National Conference to make it a success.

Organizing Secretaries

Prof. E. Chandrajith, HOD, ME
Dr. Leena A.V, AP, CE
Prof. Sujith D, AP, CSE

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

ABOUT THE TRUST

The college is managed and promoted by Sree Bhakthi Samvardhini Yogam Kannur, consisting of industrialists, professionals, administrators and organizers. Sree Bhakthi Samvardhini Yogam was constituted in 1907 with the blessings of Sree Narayana Guru, the great Saint, philosopher and reformer of Kerala. Guru's message, "Educate that you may be free, Organise that you may be strong, Industrialise that your financial status may improve" has relevance at all times and places.

The Yogam, besides managing Sree Sundareswara Temple, participates in a variety of spiritual, as well as cultural activities, promoting educational and technical institutions, viz SN Vidya Mandir Senior Secondary School, SN ITC and Sree Narayana Guru College of Engineering & Technology Payyanur. The Yogam also offers scholarships, provides financial aids and has instituted endowments for deserving students, irrespective of caste and creed.

ABOUT THE INSTITUTE

Sree Narayana Guru College of Engineering and Technology, one of the prestigious technical institutions in North Malabar, was established in 2003. The engineering college is fully equipped to meet the rising demands for greater facilities in the scenario of higher education. Since its inception, it has been true to do the mission and the prophetic vision of the great Saint Sree Narayana Guru. With its emphasis on quality education augmented by exposure and training in other individual skills, the institute's focus is on creating individuals who are all-round performers and true professionals. The College is approved by AICTE New Delhi and affiliated to APJ Abdul Kalam Technological University and adhere to the admission norms laid down by the appropriate Authority, University and Govt. of Kerala.
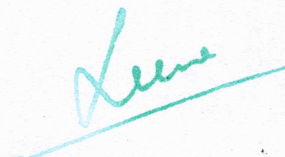
Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

The Courses offered in this institute are B Tech (CE,CSE,ECE,EEE,ME) and M Tech (Computer Aided Structural Engineering).

SCOPE OF CONFERENCE

The challenges and opportunities that surround educational field and practice are experienced everywhere in the world. To face these challenges, it is necessary for an individual to know the context within which his society currently operates, the impact and process of technology in which his activities are based. National conference plays an inevitable role in stimulating discussions that make our students competitive enough to contribute in the field of advanced technology. In this context it is a great privilege of SNGCET to organize our Fifth National Conference on Technological Advancements in Engineering.

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

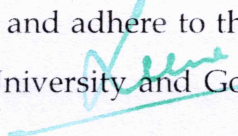# NATIONAL CONFERENCE ON TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING (NaCTAE '19)

CONFERENCE THEMES

MECHANICAL ENGINEERING:

Engineering Design, Thermal Engineering, Automotive Technology, CFD, CAD / CAM / CIM, FEA / FEM, Nanotechnology, Robotics, Renewable Energy, Industrial Engineering and Management, Advanced Materials and Manufacturing, Mechatronics, Tribology. Metrology and Instrumentation.

ELECTRICAL & ELECTRONICS ENGINEERING:

Power generation system, Power electronics, Energy management, Control systems, Industrial control, Electrical machine design, Electrical machines condition monitoring, Electrical drives, Smart grid, Power system stability and control, Renewable energy

COMPUTER SCIENCE AND ENGINEERING:

Networks and Data Security, Cloud Computing, Artificial Intelligence, Data Mining and Data Warehousing, Mobile Communication, Image Processing and Biometrics, Parallel Computing, Information and Communication Engineering.

ELECTRONICS & COMMUNICATION ENGINEERING:

Digital and Analog Circuit Design, Wireless sensor network, MEMS, Sensor devices and applications, Signal Processing and Image processing, VLSI Design, Robotics, Embedded System Design, Communication System

CIVIL ENGINEERING:

Structural Engineering, Geotechnical Engineering, Environmental Engineering, Construction Technology, Transportation Engineering, GIS and Remote sensing, Composite Materials, FEA/ FEM

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

CE 17
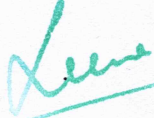
COMPARATIVE STUDY OF CONVENTIONAL STEEL BUILDING AND PRE ENGINEERED BUILDING

Swetha Pantheeradi, Dr.Susan Abraham

Department of Civil Engineering
Sree Narayana Guru College of Engineering and Technology, Payyanur

ABSTRACT

Pre-Engineered Building (PEB) concept is a new conception of single storey industrial building construction. This methodology is versatile not only due to its quality pre-designing and prefabrication, but also due to its light weight and economical construction. The concept includes the technique of providing the best possible section according to the optimum requirement. This concept has many advantages over the Conventional Steel Building (CSB) concept of buildings with roof truss. This concept involves the steel building systems which are predesigned and prefabricated. As the name indicates, it involves pre-engineering of structural elements using a predetermined registry of building materials and manufacturing techniques that can be proficiently complied with a wide range of structural and aesthetic design requirements. Loads and the load combinations adopted for carrying out the analysis of the structure is well defined in the further portions. This paper mainly aims on the comparative study of preengineered building and conventional steel building based on the design results of a warehouse building.

TRACK ID : CE   Civil Engineering

CE 18

GREEN ROOF: A LOW COST – ECOFRIENDLY ROOF TILE OF WASTE PLASTIC

Haritha K.V, K.K Varsha, Saranya M. V, Vidya Vilas, Rinitha P

Department of Civil Engineering
College Of Engineering Trikaripur, Kerala

ABSTRACT

Shelter is a basic need of human beings. Roof, which is the upper most part of the structure protects us from weather changes and provides a safe shelter. The roofing materials used changes from time to time as thatch, shingle, ceramic tile, metal roofing, concrete tiles etc. Recent roofing materials used are galvanized iron and asbestos cement sheets. But its wide usage is hindered as they are found hazardous to health. Thus we need an alternative, low cost and ecofriendly roof tile produced from waste materials. Roof tiles made of waste plastic is gaining a large popularity right now. Our aim is to bring out an innovation in existing plastic roof tile by replacing it, using saw dust and granite powder as a secondary material .The roof tiles made by adding each of these waste materials along with melted plastics are then moulded into desired shapes. Various tests such as strength test, water absorption test and temperature tests are carried out to find the best combination of roof tile. At the top of the selected roof tile a layer of coir was applied in the form of mat to grow plants. The growth of vegetation on the top of roof tile comes with a lot of benefits which includes producing cooling effect inside the building, reduction in the concentration of CO_2 in atmosphere etc. by utilizing the waste plastic we can produce a light weight roofing tile having high durability, good strength, fire resistance and is also economical.

2

TRACK ID : CE   Civil Engineering

CE 19

EXPERIMENTAL STUDY ON BACTERIAL RICE HUSK ASH CONCRETE BY INCORPORATING QUARRY DUST AS PARTIAL REPLACEMENT OF FINE AGGREGATE

Rahitha Das E V, Rakhi P K, Seethal K P, Sreeshma C V, Shyni T V

Department of Civil Engineering
College Of Engineering Trikaripur, Kerala

ABSTRACT

It is well known that one of the weaknesses of concrete is its vulnerability to cracking. Cracks may occur when concrete is in plastic state or after it has completely hardened. Through these cracks, water and other salts seeps and corrosion initiate and there by reduces life of concrete. So there is the need to develop an inherent biomaterial, a self-repairing material which can remediate all the cracks and fissure that develop in concrete. Bacterial concrete can successfully remediate cracks in concrete. Bacterial concrete is produced by adding Bacillus species to the concrete mix. In addition to self-healing property bacteria improves compressive strength of the concrete. By the partial replacement of fine sand by quarry dust and incorporating rice husk ash into the bacterial concrete, concrete properties can be further improved.

KEYWORDS: Bacillus species, Bacterial concrete, Rise husk ash, Quarry dust

TRACK ID : CE   Civil Engineering

CE 20

HYBRID HOUSING - A NOVEL FLOOD MITIGATION STRATEGY FOR REBUILDING KERALA
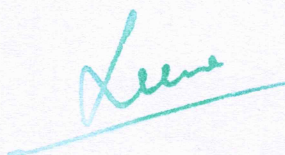
Aparna Unnikrishnan, Kiran PC, Priyanka AK, Rinitha P

Department of Civil Engineering
College Of Engineering Trikaripur, Kerala

ABSTRACT

Kerala had recently faced the most severe flood, where 1/6th of the total population was directly struck down. Henceforth, it is crucial to search for a more effective flood mitigation approaches in the flood prone areas of Kerala. The concept of this design for the flood prone areas with the strategy of automated flood defense mechanism is based on the theory of buoyancy. Hybrid housing system is an eco-friendly, adaptive flood risk reduction strategy that works in synchrony with a flood prone regions natural cycles of flooding, rather than attempting to obstruct them. A Hybrid house using GFRG panel of dimension 6.4m x 6.2m x 3m is designed. Stability analysis of the structure is carried out manually for the safety of the structure. ETABS software is used for the designing of columns in the pit system and the remaining design is carried out manually. This paper highlights the possibility of adopting Hybrid housing system over selected flood hit region in Kerala.

Keywords: Hybrid house, concrete pontoons, GFRG.

EE02
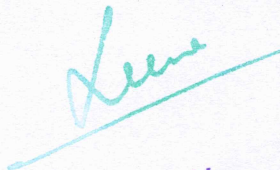
TIMED RELAY MECHANISM FOR INDUCTION MOTORS IN PARALLEL

Jayaraj J, Junaid Ali N, Namith K, Sujay A, Sukesh A

Department of Electrical and Electronics and Engineering
Government College of Engineering Kannur, Kerala, India

ABSTRACT

Induction motor draws a large inrush current during its start-up. This current is generally 6-8 times of its full load current. When a scenario occurs where a number of induction motors are made to start simultaneously, the cumulative inrush current drawn could be enormous. Usually power electronics-based circuitries are used to mitigate this problem. Although power electronic based devices are excellent in slashing the high starting current, employing them, where several motors are to be operated in parallel, could be expensive, especially for rural applications. A relay based starting mechanism is proposed in this paper. The circuit switches each motor sequentially with a time delay being given in between two motors. By the sequential switching on of the motors the cumulative effect of inrush currents can be avoided. The relays are controlled by a microcontroller. The starting current characteristics of the motor with and without employing the timer relay circuit is compared

Electrical and Electronics Engineering

EE03

EQUIVALENT CIRCUIT FOR SIX PHASE INDUCTION MACHINE DRIVE

Vishnu Unnikrishnan, Athul V. K, Adarsh P. I, Midhun Krishnan P. P,

Sukesh A

Department of Electrical and Electronics and Engineering
Government College of Engineering Kannur, Kerala, India

ABSTRACT

It is estimated that by 2040 the number of electric vehicles on the road would be around 12 million. The drive system used popularly in electric vehicles are induction motors and DC motors. However, in aircraft and submarines it is found that six phase induction motors have been used because of their uniform torque. The six-phase induction motor has however not found an application in on road vehicle. So it is important to test whether the six phase induction machine is capable for on road application. As a directive towards this goal, a six-phase induction motor was designed and fabricated inhouse. A first step towards the performance analysis will be to come up with an equivalent circuit. The equivalent circuit parameters were determined by the open circuit and blocked rotor test. For measurement of power, an intuitive method of using two wattmeter is used.

EE04

HEURISTIC METHOD FOR PERFORMANCE ANALYSIS OF ELECTRIC PADDY CLEANING MACHINE

Dhishna R Raveendran, Kavya K C, Sreelekha E, Varadalakshmi Nambiar, Sukesh A

Department of Electrical and Electronics Engineering
Government College of Engineering Kannur, Kerala, India

ABSTRACT

Paddy is the major contributor to the agricultural sector in India. Paddy cleaning machine has been largely used by rural innovators throughout the country. Scrutinization of such machines under stringent engineering standards have not been attempted so far. This has resulted in a unoptimized machine under wide use. As a first step to optimize such structures we attempt to evaluate an electric paddy cleaning machine developed using the existing facilities. A techno economic study of cleaning efficiency using a heuristic approach has been attempted.

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

EE05

DROWSINESS DETECTION DEVICE USING ARDUINO

Vaishakh M.M, Vishnu Unnikrishnan

Department of Electrical and Electronics Engineering
Sree Narayana Guru College of Engineering & Technology, Payyanur

ABSTRACT

The rate of vehicles plying on roads is increasing at an alarming rate. Along with this, the rate of accidents is also increasing, especially during night time due to drowsiness. People, especially adults who work during night shifts, have to drive during the midnight hours and hence feel tiresome during driving and often tend to fall asleep causing accidents.   Also, since the traffic is much lesser compared to that during daytime, people tend to ply at a very high speed through the highways, thus increasing the risk factor of not only the drivers but also the pedestrians. In order to reduce this risk, a DROWSINESS DETECTION DEVICE USING ARDUINO comes handy.

ME 06

RF CONTROLLED BEACH CLEANER VEHICLE

Athul Raj CP ,Kiran K ,Sayanth KP ,Shamith

Department of Mechanical Engineering
Sree Narayana Guru College of Engineering & Technology, Payyanur

ABSTRACT

Cleanliness is vital and intuitive when it comes to public places because huge number of people uses beaches and parks for recreational purpose every day. The seashore waste like polythene, bottle etc. which further increases the risk of spreading of diseases due to dirty environment and rotten garbage. Here we propose an innovative RF Controlled Beach Cleaner which can be a big relief for this task of cleaning garbage from the places like beach. In this system front wheel drive vehicle chassis is equipped with a cleaning mechanism and a dirt bag for Garbage collection. Here we use lifter mechanism consists of a chain-sprocket arrangement to drive the garbage lifter and gear-motor arrangement to drive .wheels. The .whole system is driven by a microcontroller powered circuitry PCB which transmits command through RF.

Keywords: RF controller, Lifter mechanism, Beach cleaner

ME 07

AMPHIBIAN BIKE

Nasif K P, Mubashir V K, Umar Jazar C H, Sonu Vinod O

Department of Mechanical Engineering
Sree Narayana Guru College of Engineering & Technology, Payyanur

ABSTRACT

According to the current scenario people are more liable on transport accommodation due to which the demands of vehicles are being increased day by day. Due to rise of urbanization and rapid increase in technology many new designs of vehicles are landed on the platform and its craze is gradually increasing. Thus, in order to be in the line of innovative vehicle design a concept has been followed so that to join two modes of transport with a single rope. This can be achieved by the help of "Amphibian Bike" in which the chassis is being designed in such a way that it can move both on land and on water. Various driving mechanisms are being setup in order to loco mote the bike on water as well as control its direction. Thus, blades are being setup which is being driven by the bike engine. This type of vehicle could become a dual mode of transport and can be used during an emergency such as flood or for performing routine work easily. Moreover, such setup is cost efficient and can be easily framed with any bike without any difficulty.

Keywords: Amphibian, Blades, Modified rear hub, Steer, Chassis

TRACK ID : ME   **Mechanical Engineering**

ME 08

EFFECT OF FATTY ACID METHYL ESTER COMPOSITION OF BIODIESEL ON ENGINE PERFORMANCE
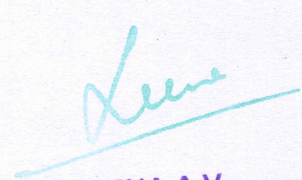
Aswin P V, Athul Santhosh, Ramith Ravindran, Sanjay Krishnan, Manuraj T V

Department of Mechanical Engineering
Sree Narayana Guru College of Engineering & Technology, Payyanur

ABSTRACT

Biodiesel is an ecofriendly substituent fuel for the diesel engine due to its much similarity of properties with petro-diesel. The biodiesel are made from vegetable oil (edible and non-edible), animal fat and used frying oil etc. Biodiesel are on pollutant, non-flammable and renewable. The raw material from which the biodiesel is produced determines its physical and chemical properties. The biodiesel contain both saturated and unsaturated esters which even depend on the raw material. In this study biodiesel was produced from karanja oil and coconut oil. The fatty acid level in karanja oil and coconut oil is very low in percentage so the production of biodiesel from these oils can be done by single stage alkali catalyzed trans esterification reaction. The karanja oil is highly unsaturated whereas coconut oil is saturated. After preparation of biodiesel both the chemical and physical properties are tested and compared with the ASTM standards. The engine test was conducted on 4 stroke single cylinder piaggio ape diesel engine using both the karanja biodiesel and coconut biodiesel separately to study the effect of composition (carbon chain length and degree of saturation or unsaturation) of biodiesel on performance and emission results. This result was compared with the result of engine tested using petro-diesel which is taken as the reference fuel. Emission characteristics are even studied with the blending of saturated and unsaturated

TRACK ID : ECE   • **Electronics and Communication Engineering**

EC 05

HYPERSPECTRAL IMAGE DENOISING USING SUBSPACE IDENTIFICATION AND LOW-RANK RECOVERY

Radhika K, Nishanth Augustine

Department of Electronics and Communication Engineering
LBS College Engineering, Kasargod, Kerala

ABSTRACT

Fractals have complex shapes that possess an inherent self-similarity in their geometrical structures. Due to the self-similarity and space-filling property, fractals have variety of in many areas of science and engineering. Fractal electrodynamics is such an area in which fractal geometry and electromagnetic theory are combined to look into its application in the antenna theory and design. Fractal geometry is an excellent solution to design low profile multiband antennas. A novel coplanar waveguide (CPW) - fed fractal multiband antenna is presented. Fractal concept is applied to achieve multiband operation along with miniaturization because of its self. This fractal antenna has been examined using a full wave electromagnetic (EM) simulator and the results show that the antenna covers multi-wide band ranges (2.36– 3.20 GHz), (3.97– 4.51 GHz), (5.20– 6.13 GHz) and (7.35– 8.24 GHz) and is suitable for ISM 2.4 G, Bluetooth, GPS, GLONSS, GALILEO, WLAN, WiMAX, 5G, U-NII mid-band, U-NII high-band and C band applications etc. The antenna displays a bidirectional radiation pattern in the E-plane and a nearly omnidirectional radiation pattern in the H-plane. The proposed antenna can be a good choice for multiband applications due to its simple structure, small size and excellent multiband characteristics.

TRACK ID : ECE   **Electronics and Communication Engineering**

EC 06

VOICE ACTIVITY DETECTION IN THE SPEECH SIGNAL

Arun K B, Manoj K C

Department of Electronics and Communication Engineering
Vimal Jyothi Engineering College, Kannur,Kerala

ABSTRACT

Voice is considered as the best common messenger of human and is expected to turn into the major form of upcoming computer-human communication.Voice activity detection (VAD) is used as a pre-processing step for speech enhancement, speech recognition, and speech transmission. VAD is described as the issue of differentiating speech from noise or silence. The variety and the varying nature of background noise and speech make it exclusively a challenging task. Energy, spectral flatness, periodicity, spectral distance, Linear Predictive Coding (LPC), cepstral coefficients and zero crossing rate are some of the features which are generally used in VAD techniques.

However, these features are sensitive to the Signal to Noise Ratio (SNR) value; and the detection accuracy degrades in accordance with the decrease in SNR value.So, in the previous year's different algorithms have been developed for VAD that uses various features to compromises between accuracy, computational cost, latency, and sensitivity. In this paper, a comparative study has been implemented to classify various VAD methods to get a clear idea of the better VAD method.

The methods which are compared in this paper make use of Mel-frequency cepstral coefficients (MFCC), Teager-Kaiser energy, spectrum energy, neurograms, combination of energy and zero crossing rate for voice activity detection.

48

TRACK ID : ECE   Electronics and Communication Engineering

EC 07

DESIGN AND IMPLEMENTATION OF FILTERED X LMS ADAPTIVE ALGORITHM

Kannan

Nirupama Kannan

Department of Electronics and Communication Engineering
LBS College Engineering, Kasargod, Kerala

ABSTRACT

This paper represents an adaptive filter using Filtered x Least Mean Square (FxLMS). There are many variations of Least Mean Square(LMS) in which FxLMS has been widely used in Active Noise Cancellation (ANC). The FxLMS algorithm is considered to be the best choice for its reduced complexity and robustness, especially for controller in adaptive filter. The FxLMS algorithm uses accurate estimation of the secondary path for the convergence and stability of the system. Modern technologies cause increase in environmental acoustic noise due to wide spread of industrial equipments. Chronic exposure to noise may affect the nervous system and lead to many health issues. ANC is a system that effectively attenuates low frequencies unwanted noise whereas passive methods are either ineffective or tends to be very expensive or bulky. ANC has the advantage of suppressing noise at low frequency with smaller size, weight, volume and cost. The simulation is carried out using MATLAB simulunk model.From the Simulink model, the VHDL code of the system is generated.

TRACK ID : ECE   Electronics and Communication Engineering

EC 08

IMPLEMENTATION OF MRMN ADAPTIVE FILTER FOR THE REMOVAL OF GAUSSIAN AND IMPULSIVE NOISE

Swetha B

Department of Electronics and Communication Engineering
LBS College Engineering, Kasargod, Kerala

ABSTRACT

Adaptive filters are used in many real-time applications such as echo cancellation, noise cancellation, system identification and prediction. An adaptive filter, automatically design itself and detects system variation. It is impossible to predict when an impulsive noise appears and symbols used will be corrupted. This affects the proper operation of the filter and the adaption process. This noise is one of the most damaging type of distortion. There are various methods to remove impulsive noise such as LMS Algorithm, Sign-Error Algorithm, Robust- Mixed Norm (RMN) Algorithm, and Robust Adaptive Algorithm. In this paper, Modified Robust Mixed- Norm Adaptive Algorithm (MRMN) is presented. This method shows the best results in terms of convergence. The proposed method has been simulated using Matlab Simulink model and Xilinx system generator. The MRMN algorithm reduces SSE and offers less convergence time compared to traditional schemes.

51

TRACK ID : ECE   Electronics and Communication Engineering

EC 09

PATTERN DIVISION MULTIPLE ACCESS (PDMA) IN 5G COMMUNICATION SYSTEMS USING COMPRESSED SENSING ALGORITHMS

Kavya Vinod[1] , Jaspreeth N[2]

Department of Electronics and Communication Engineering
[1] - Sree Narayana Guru College of Engineering and Technology, Payyanur
[2] - Smart IOPS Research Centre, Thiruvananthpuram, Kerala

ABSTRACT

In this paper, a 5G technique called Pattern Division Multiple Access (PDMA) using Compressed Sensing Algorithm is put forward for communication systems. A resource group is defined using PDMA patterns with reference to either time or frequency for data transmission. Users sharing the same resources are differentiated by utilizing those set of patterns, and the patterns are designed with different sparsity so as to enhance the overall performance by preserving the estimation complexity to a huge extent. In a field containing many users, the number of people taking part in transfer of messages is quite less. Hence considering those inactive users to be sparse, certain Compressed Sensing (CS) methods are used to analyze an underdetermined PDMA system using Stagewise Orthogonal Matching Pursuit (StOMP) and Basis Pursuit (BP) Algorithm Algorithm where the active locations are caught for estimating the message signal. Hence, an improved execution in terms of Spectral efficiency, bit error rate and uplink-downlink performance is obtained through StOMP algorithm.
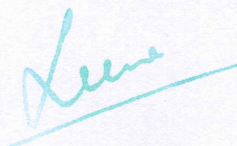
Keywords — PDMA, StOMP, BP, 5G.

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

CS-01

MACHINE LEARNING TECHNIQUE FOR WOMEN SAFETY USING ACTIVITY AND FEAR DETECTION METHODS

Rajitha K. V, Gireesh T. K.

Department of Computer Science and Engineering
AWH Engineering College, Kuttikkattor

ABSTRACT

The world is becoming unsafe for women in all aspects. The crimes against women are increasing at a higher rate. This paper proposes a quick responding mechanism that helps women during trouble with the use of a mobile phone . Accelerometers embedded in the mobile phone allow the assessment of physical activity for long periods of time. The features of the signal are selected based on the time and frequency domain. Then, Principal Component Analysis (PCA) is used to reduce the dimensionality of the features and extract the most significant ones that can classify human activities. Acquisition of data is then followed by activity recognition which is a process of employing a specialized machine learning algorithm - MLP NN. The audio input from the mobile phone splits into frames and find out the feature -pitch. KNN algorithm is used for recognizing the emotion. The combination of detected activity and recognized emotion determines whether she is in trouble or not. An alert message/notification is sent to designated individual along with her location using GPS.

TRACK ID : CSE   Computer Science Engineering

CS-02

AN AUTOMATED CAMPUS SYSTEM WITH COMPOSITE SERVICES

Mithun Dinesh N, Nidhin M, Nived M K, Neethu T Regi

Department of Computer Science And Engineering
Malabar Institute of Technology , Anjarakandy Kannur, Kerala

ABSTRACT

Traditionally campus processes are managed manually. Staffs needed to take all data and process it manually and submit it. This method will detects with more errors, more time consuming, more manpower. But later a system called campus management has been introduced. But also use of this system has many limitations. Many of them are not doing correctly updated works, many are not user friendly. And they only manage the academic matters only. An Automated campus management with composite work is introducing for resolving all this issues. This system controls or manages in all the aspects i.e. in academic or in financial systems of the campus. System will control the whole campus. Status need only to monitor it. Additional service include Virtual classroom, one time attendance marking. Most important advantage is that we give more user friendly and fast updating method in efficient way.

54

CS-03

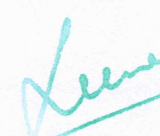# UNPAIRED IMAGRE TO IMAGE TRANSLATION

Akshay Chandran, Prathyai K, Aiswarya S, Anagha E K , Shijitha P U

Department of Computer Science and Engineering
Malabar Institute of Technology, Anjarakandy Kannur

ABSTRACT

Image to image translation is a wide range of vision and graphics problems where the main aim is to learn the mapping between an input image and an output image by using a training set of aligned image pairs. It is noted that for many tasks, paired training data will not be available. The main approach introduced here is to learn to translate an image from a source domain X to a target domain Y in the absence of paired examples. The goal is to learn a mapping $(G : X=Y)$ such that the distribution of images from $G(X)$ is indistinguishable from the distribution Y using an adversarial loss.

Because this mapping is highly under-constrained, it is coupled with an inverse mapping $F : Y$ X and introduce a cycle consistency loss to enforce $F(G(X))$ X (and vice versa).Qualitative results is achieved on several tasks where paired training data does not exist, including collection style transfer, object transfiguration, season transfer,photo enhancement, etc. Quantitative comparisons against several prior methods illustrate the superiority of our approach.

TRACK ID : CSE   Computer Science Engineering

CS04

MONITORING REAL TIME VIDEOS USING CAMERA INTERFACE

## Anjitha K K, Athira Saseendran, Preeja M, Shilpa V K, Reshna T

Department of Computer Science And Engineering
Malabar Institute of Technology, Anjarakandy Kannur , Kerala

ABSTRACT

Closed circuit television systems (CCTV) are becoming more and more popular and are being deployed in many offices, housing estates and in most public places. But these all techniques requires manual processing and can be affected by errors so we propose our system. For the CCTV operators, as the number of camera views a single operator can monitor is limited by human factors. Different CNN architectures and frame works will be evaluated and customized in the course of the project and the best choice will be used for the purpose of application. Here we can detect each and every objects in the video. The searching of object is of two ways one by image search and other by text search. Deep convolutional neural networks have recently achieved state-of-the-art performance on a number of image recognition benchmarks. In this paper, we focus on the task of automated detection and recognition of dangerous situations for CCTV systems. We propose algorithms that are able to alert the human operator when a firearm or knife is visible in the image. As an important branch of deep learning, convolutional neural network has been widely used in image

recognition, and has achieved great success. It can be used in practical work like attendance system, criminal investigation field etc. By Deep learning technique the whole system is implemented. It is an effective method for police officers and other persons who analyze manually the surveillance video.

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

CHALAKKODE P.O, PAYYANUR, KANNUR - 670307

NaCTAE
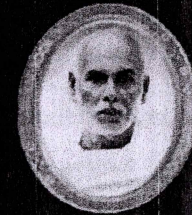
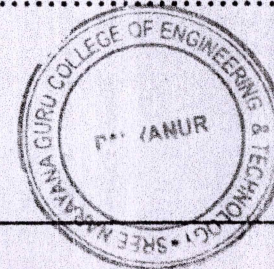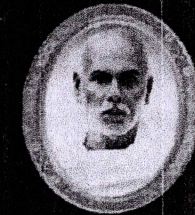# 5th National Conference on
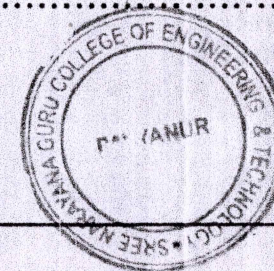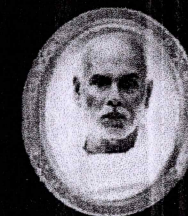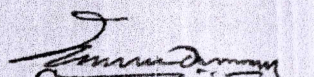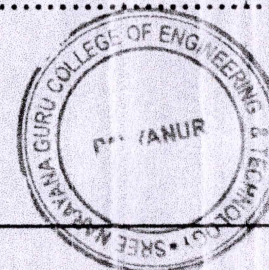
TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. MOHAMMED IRSHAD

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled AUTO POWER SUPPLY CONTROL FROM

DIFFERENT SOURCES

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
CHALAKKODE P.O, PAYYANUR, KANNUR - 670307

5th National Conference on
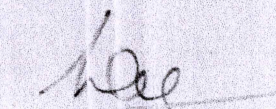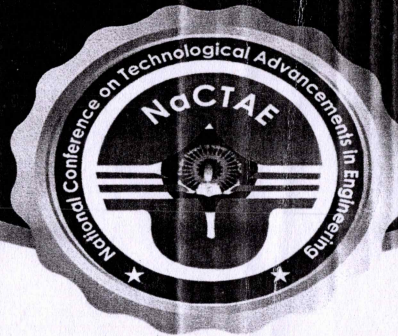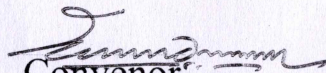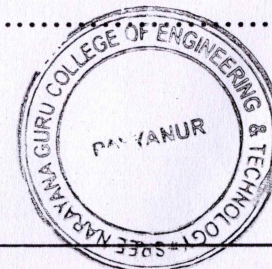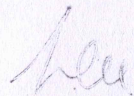## TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. SHARON. P.P

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled AUTO POWER SUPPLY CONTROL FROM

DIFFERENT SOURCES

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

CHALAKKODE P.O , PAYYANUR, KANNUR - 670307

5th National Conference on

TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms VISHNU UNNIKRISHNAN

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled AUTO POWER SUPPLY CONTROL FROM DIFFERENT SOURCES

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
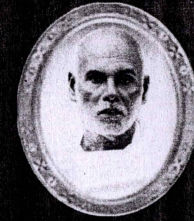ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal
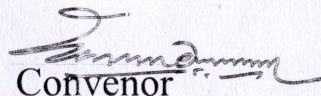
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
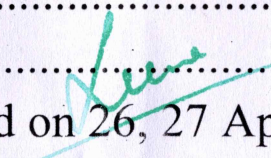## CHALAKKODE P.O , PAYYANUR, KANNUR - 670307
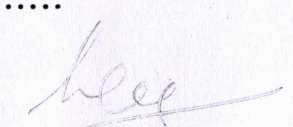
NaCTAE

5th National Conference on
TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. ANAGHA ASHOKAN

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled SOLAR ENERGY MEASUREMENT SYSTEM

USING PIC

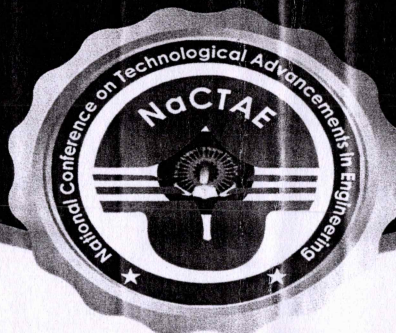in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
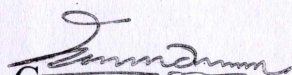
CHALAKKODE P.O , PAYYANUR, KANNUR - 670307

NaCTAE

5th National Conference on
TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. ASWIN RAJ T ....

of SREE NARAYANA COLLEGE OF ENGINEERING AND TECHNOLOGY ...has presented

a technical paper titled SOLAR ENERGY MEASUREMENT SYSTEM ....

USING PIC ....

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

CHALAKKODE P.O , PAYYANUR, KANNUR - 670307

NaCTAE

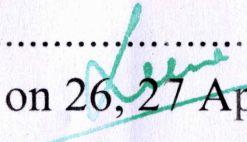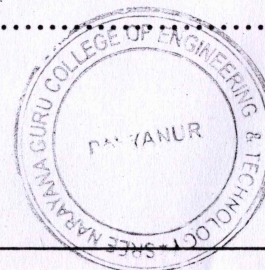National Conference on Technological Advancements in Engineering

5th National Conference on

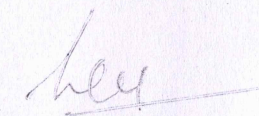## TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. ROHIT VK

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

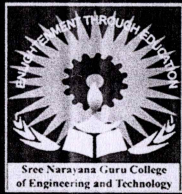a technical paper titled SOLAR ENERGY MEASUREMENT SYSTEM USING PIC

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
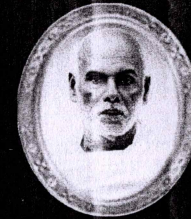ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
CHALAKKODE P.O , PAYYANUR, KANNUR - 670307

NaCTAE
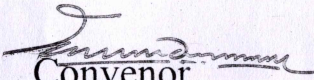National Conference on Technological Advancements in Engineering

5th National Conference on
TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. NIDHIN NADAKUMAR

of SREE NARAYANA COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled SOLAR ENERGY MEASUREMENT SYSTEM

USING PIC

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

CHALAKKODE P.O , PAYYANUR, KANNUR - 670307

NaCTAE

National Conference on Technological Advancements in Engineering
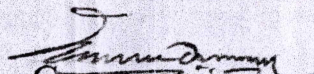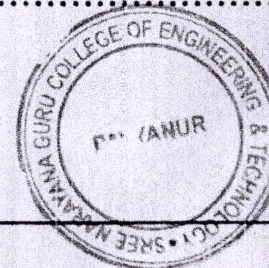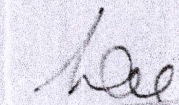
5th National Conference on

TECHNOLOGICAL ADVANCEMENTS IN ENGINEERING

Certificate

This is to certify that Dr./Prof./Mr./Ms. NITHIN . M

of SREE NARAYANA GURU COLLEGE OF ENGINEERING AND TECHNOLOGY has presented

a technical paper titled AUTO POWER SUPPLY CONTROL FROM

DIFFERENT SOURCES

in the National Conference held on 26, 27 April 2019

Convenor

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Principal