



# GECT RESEARCH BULLETIN

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Compiled by Institute Research Advisory Council (IRAC)



## Principal's Message

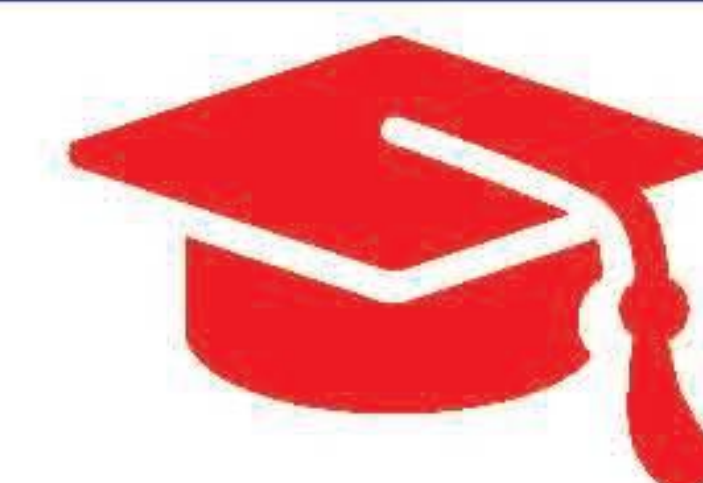
I am very delighted to note that research achievements of our college are continuing in the same pace and five research scholars are awarded PhD degrees in last six months. I extend my heartfelt congratulations to all the scholars and their supervisors. We should focus on interdisciplinary research of high quality and large Impact. Current challenges demand innovative and unconventional approaches that cross the boundaries of classic disciplines. Utilizing the opportunity of global online platforms we conducted a virtual international conference with many reputed international faculty delivering invited/ keynote speeches. I would like to congratulate the conveners Dr Haris N and Dr K K Ramachandran, coordinators of the various tracks and all those who have contributed to the success of the conference. I would also like to express my sincere appreciation to Dr Vinod Raphael and Prof Anish Babu for the consistent efforts in releasing the research bulletin on time.

I look forward to seeing more and more of the research achievements.

Dr. Sheeba V S



## GEC's Proud Moments



### Congratulations to PhD Holders...

Research Advisory Council of GEC Thrissur has immense pleasure to congratulate our faculty members Prof. Vipinkumar K S, Prof. Ajay James & Prof. Smineesh C N of department of CSE, Prof. Nelson K J of department of ECE, Prof. Sunil Jerome & Prof. Mahipal D of department of ME, Prof. Uma Syamkumar of department of EE, Prof. Manilal A M of department of ChE and Sri. Sagar M Narayanan, Sri. Sam Joshy & Sri. Sijo M T of department of ME for acquiring Ph. D.



Dr. Vipinkumar K S



Dr. Ajay James



Dr. Smineesh C N



Dr. Nelson K J



Dr. Sagar M  
Narayanan



Dr. Mahipal D



Dr. Uma Syamkumar



Dr. Manilal A M



Dr. Sunil Jerome



Dr. Sam Joshy



Dr. Sijo M T



## Details of PhD Awardees

Sl. No	Name of Ph. D Awardee	Dept.	Name of Supervisor	Title of the Work	Date of Award & University
1	Vipinkumar K S	CSE	Dr. Sheena Mathew	Compiler Based Model Construction for Prioritized Test Scenario Generation and its Distributed Testing in Object Oriented Programs	CUSAT, 18/08/2020
2	Sunil Jerome	ME	Dr. G VenkataRathnam	Theoretical and experimental studies on ultra low temperature Linde- Hampson Refrigerator	IIT Madras, 21/08/2020
3	Nelson K J	ECE	Dr. K Vasudevan	Coplanar Waveguide to Double-Sided Parallel-Strip Line Transitions and Their Applications	CUSAT, 09/07/2020
4	Ajay James	CSE	Dr. Chandran Saravanan	Offline Recognition of Malayalam Handwritten Text	NIT Durgapur, 27/08/2020
5	Sminesh C N	CSE	Dr. E. Grace Mary Kanaga	Investigations on Flow Management Techniques in Data and Control Plane to Improve Quality of Service in Software Defined Wide Area Networks	Karunya University, 28/08/2020
6	Sagar M Narayanan	ME	Dr. Pradeep M Kamath	Experimental and numerical investigations on the heat transfer performance of a stacked double layer Microchannel	University of Calicut, 18/09/2020
7	Uma Syamkumar	EE	D. Jayanand B	Smoothed Kalman Observer for Sensorless Field-oriented Control of Induction motor	University of Calicut, 17/11/ 2020
8	Sam Joshy	ME	Dr. Jayadevan K R	Influence of in-service microstructural changes in hot forging dies on die failure	University of Calicut, 27/11/2020
9	Manilal A. M	ChE	Dr. Solomon P A	Removal of oil from produced water/ oilfield wastewater	University of Calicut, 14/12/2020
10	Mahipal D	ME	Dr. Jayadas N H	Analysis, modification and evaluation of the properties of Karanja oil (Pongamia Pinnata) as a base oil for industrial lubricant.	CUSAT, 17/12/2020
11	Sijo M T	ME	Dr. Jayadevan K R	Some investigations on Mushy state solidification of particle reinforced metal matrix composites	University of Calicut, 22/12/2020



# Journal Articles

*Congratulations to the Contributors....*

## Chemical Engineering

**Manilal A. Madhavan, Solomon P. Antony**, “Effect of polarity shift on the performance of electrocoagulation process for the treatment of produced water “, *Chemosphere* Volume 263, January 2021, 128052

## Production Engineering

**Ramkumar, P.N. and Satish, K.P.** “Statistical investigation of Lean Six Sigma for waste reduction in Indian SMES by identify rank define analyse improve control model”, *Int. J. Productivity and Quality Management*, Vol. 30, No. 2, pp.252–277. (2020) DOI: 10.1504/IJPQM.2020.107815

## Civil Engineering

**Anjali P. Sasidharan, V. Meera&Vinod P. Raphael** “Investigations on characteristics of polyurethane foam impregnated with nanochitosan and nanosilver/silver oxide and its effectiveness in phosphate removal”, *Environmental Science and Pollution Research*(2020), <https://doi.org/10.1007/s11356-020-11257-2>

## Computer Science and Engineering

**Sminesh, Choorkunnu Narayanan, Edward Grace Mary Kanaga, Aiswarya Roy**Optimal Multi-controller Placement Strategy in SD-WAN using Modified Density Peak Clustering. *IET Communications* 13(20), 3509 –3518

**C. N., Sminesh, Mary Kanaga E., Grace A. G., Sreejish**”A Multi-Controller Placement Strategy in Software Defined Networks using Affinity Propagation”*International Journal of Internet Technology and Secured Transactions*. 10(1), 229-254.

## Physical Education

**Shejin, K V, Vivekanandhan T**, “Effect of circuit training on obesity, vital capacity and flexibility among school going obese children” *International Journal of Sports Sciences and Fitness*, Volume 10(2) 2020

## Chemistry

**VinodPalayoor Raphael, ShajuKanimangalathShanmughan**”In silico Evaluation on the Inhibition Efficacy of Five Antivirals on SARS-Co V-2 Protease (COVID-19)”, *Indian Journal of Pharmaceutical Education and Research* | Vol 54 | Issue 4 | Oct-Dec, 2020

**Vinod P. Raphael,Shaju K. Shanmughan**, “Computational Evaluation of the Inhibition Efficacies of HIV Antivirals on SARS-CoV-2 (COVID-19) Protease and Identification of 3D Pharmacophore and Hit Compounds”, *Advances in Pharmacological and Pharmaceutical Sciences*, Volume 2020 |Article ID 8818008 | <https://doi.org/10.1155/2020/8818008>

**Binsi M. Paulson, K JobyThomas ,Vinod P. Raphael , K SShaju, KRagi**, “Mitigation of concrete reinforced steel corrosion by penta sodium triphosphate: physicochemical and electrochemical investigations” *SN Applied Sciences* (2020) 2:1813, <https://doi.org/10.1007/s42452-020-03586-1>

## Physics

**Prasanth P, Reshma P, K MUdayanandan**, “Why we need ensembles in statistical mechanics?” *Physics Education* July - September 2020,

**Prasanth P, Reshma P, K MUdayanandan**”a general expression for equipartition of energy” *Rev. CubanaFis.* 37, 138 (2020)



## NEWS

We are aiming High!

It is due to the great effort taken by the previous NIRF coordinator **Dr. N Sajikumar** that we could secure a good position in the National ranking. At present **Dr. Joseph K D** has taken charge as the new NIRF coordinator of our institution. The NIRF team of the institution makes every attempt to bring all our works- academic, research, and also those related to the infrastructural activities to the limelight. The NIRF team requests the support and co-operation of all the faculty members and staff through their various contributions to this noble venture. In the meeting of the NIRF team held on 25/01/2021, our Principal **Dr. Sheeba V S** acknowledged the contribution made by **Dr. Jisha** in the collection of NIRF data. The coordinator pinpointed and emphasized the importance of the following works in scoring a rank for our institution

- i) To update periodically our research publications in indexing agencies such as **Publons** and **Scopus**
- ii) To update the details of Reviewer activities done by the faculty members in **Publons**
- iii) To Acknowledge our institution in the field of special talks delivered by faculty members as special invitees on various conferences

## GEC signed two more MoUs

IRAC congratulates **Dr. Sudheesh**, **Dr. Lalu P Pand** and **Dr. Jaisom Mathew** for their efforts to sign MoUs with the reputed institutes. We hope that this will be really useful for the research works of students/faculty.

Institute	Project	Dept./Lab	Coordinated by
Kerala Agricultural University	Design and Development of Robotic Pineapple harvester	Nodal Centre for Robotics and Artificial Intelligence	Dr. Sudheesh, Dr. Lalu P P
ISRO through NITK Suratkal	Collaboratives short term/long term project for B. Tech & M Tech Students	B. Tech & M Tech Students	Dr. Jaison Mathew

## We have to increase the number of research publications!

In the research council meeting presided by the Research dean of our college **Dr. Sajikumar N** on 07/07/2020, Principal **Dr. Sheeba V S** and Dean insisted the faculty members to increase the number of quality journals. Dean also suggested the members to publish the M Tech Project work in the national/ international journals. Committee also took decisions to conduct internal DC meetings in all departments to evaluate the progress of the research work every month. Principal reminded the department co-ordinates about the importance of the number of publications to get a good NIRF score for our institution.

## TEQIP's Assistance for Research works

Proposals are invited from departments for the following.

- 1) Project funding to current final year B.Tech and M.Tech students. The request should be submitted by the faculty guiding the project and forwarded by the HOD. The request should have a brief abstract of the work and the anticipated expenditure statement.
- 2) Request from faculty for attending webinars (The registration fee will be reimbursed)
- 3) Request for conducting Visiting faculty program (as per the revised norms only Rs 3000/ can be paid to the resource person).



## International Conference on Emerging Trends in Engineering, Science and Technology (ICETEST-2020)

17-19, December 2020

Government Engineering College Thrissur has been organizing the biennial International Conference on Emerging Trends in Engineering, Science and Technology (ICETEST) from the year 2009 onwards. Ever since the first edition, the conference has received overwhelming response from academicians, scientists, researchers and scholars all over the world and has become a global platform to present, share and discuss their research findings in various fields of science, engineering and technology. The conflict between combustion based energy generation and environmental degradation is of global significance that poses threat to the very existence of the present society as well as future generations. It is the responsibility of the academic/research community to support the society through socially and environmentally sustainable solutions to these impending issues by intense R & D activities. In view of the above, ICETEST 2020 is organized with the main theme “**Society, Energy & Environment - showcasing the roadmap for tomorrow**”

Three sub-conferences are organized under the aegis of ICETEST 2020; International Conference on Civil engineering Advances for Sustainable Infrastructure Development & Environment (CEASIDE 2020), International Conference on Recent Advances in Materials Processing and Technology for Sustainability (RAMPTS 2020) and International Conference on Power Instrumentation Control and Computing (PICC 2020). The multi-disciplinary nature of the conference provides a great opportunity for delegates to get conversant with the current and concurrent research in diversified areas. PICC 2020 was technically co-sponsored by IEEE Kerala Section, IEEE Industry Application Society, IEEE Power Electronics Society.

Though ICETEST 2020 has been organized under the shadow of COVID-19, the conference has received overwhelming response from the scientific community all over the world. Altogether there were nearly five hundred contributory paper submissions to the conference. All the submitted papers have been subjected to stringent closed peer review by at least two reviewers and subsequently, ICETEST 2020 features more than two hundred contributory oral presentations in addition to eighteen Keynote/Invited Lectures.

**Dr. HarisNaduthodi**, Professor, Department of Production Engg. and **Dr. K K Ramachandran**, Professor, Department of Mechanical Engg. were the conveners of ICETEST 2020. **Dr. Seena P** (Civil Engg.) & **Dr. Josna Raphael P**, (Architecture), **Dr. Rekha L** (Mech. Engg.) and **Dr. Joseph K D** (Electrical Engg.) were the Coordinators of the sub-conferences CEASIDE 2020, RAMPTS 2020 and PICC 2020 respectively.

### Distinguished Speakers of ICETEST 2020

#### PLENARY ADDRESS



**Prof. Ned Mohan**  
University of Minnesota, USA



**Prof. Sigitas Tamulevičius**  
Kaunas University of  
Technology, Republic of Lithuania



**Beena Sukumaran, Ph.D**  
Dean, Miami University College  
of Engineering & Computing, USA

#### Keynote Speakers



**Prof. Frede Blaabjerg**  
Aalborg University, Denmark



**Prof. Sam K Zachariah**  
Indian Institute of Space  
Science and Technology,  
Thiruvananthapuram



**Mr. Haridas V**  
NXP Semiconductors,  
Eindhoven,  
Netherlands



**Dr. Ambrish Singh**  
School of New Energy and  
Materials  
Southwest Petroleum University P.R.China.



**Prof. Kannan Govindan**  
University of Southern  
Denmark, Odense, DENMARK.



**Prof. Sumesh P.  
Thampi**  
IIT, Madras



**Prof. Sulapha Peethamparan**  
Clarkson University, USA



**Dr. N Ganesan**  
NIT, Calicut



**Amar Sawhney, M.**  
At Miami-Dade College,  
Florida



## International Conference on Emerging Trends in Engineering, Science and Technology (ICETEST-2020)

Papers presented by Faculty, Staff and Students of GECT in International Conference on Civil Engineering Advances for Sustainable Infrastructure Development & Environment (CEASIDE 2020).

### CEASIDE 203

**Comparison of hydrodynamic and sediment transport model for dam break analysis over mobile bed**

Sruthi Surendran, Reeba Thomas

*Dept. of Civil Engineering, Government Engineering College Thrissur, India , Email: sruthi2010@gmail.com*

### CEASIDE 243

**Identification of water scarce regions of kunthipuzha river basin using water allocation tool**

Neethu Sidharth P, Reeba Thomas

*Water Resources & Hydro informatics, Department of Civil Engineering Govt. Engineering College, Thrissur, Kerala, India, Email: neethusidharthp@gmail.com*

### CEASIDE 244

**One dimensional hydrodynamic modelling of pamba river for identifying the flood vulnerability**

B Anju<sup>1</sup>, T K Drissia<sup>2</sup>, P T Nowshaja<sup>3</sup>

*<sup>1,3</sup>Department of Civil Engineering, Govt. Engineering College, Thrissur, Kerala, India, Email: anjubtikkoti@gmail.com*

*<sup>2</sup>Senior Scientist, Centre for Water Resources Development and Management, surface water division, Kozhikode, Kerala, India*

### CEASIDE 253

**A study on economic feasibility of fly ash and ground granulated blast furnace slag based geopolymer concrete**

Chithra K.S, Binoy Thomas, Harismitha A, Ananth Raj Kunnath, Dr. Deepa Mohan

*Vidya Academy of Science and Technology, Department of Civil Engineering, Thrissur, Kerala, India, Email: chithrasugesh@gmail.com*

### CEASIDE 261

**Addressing Walkability of Kochi Corporation area with a focus on Inland Water Transportation**

Dona Ann John, K M Sujith

*School of Architecture and Planning, Government Engineering College, Thrissur, India  
Email: donaannjohn25@gmail.com*

### CEASIDE 265

**Eco Tourism concept: A case for Ottappalam - Shoranur Region**

P. Hasna, A. Geetha

*School of Architecture and Planning, Government Engineering College, Thrissur, India  
Email: hasnaparakkanni@gmail.com*

### CEASIDE 282

**Planning for Zero Homeless Kasaragod District**

N. Arathi , S. Aneesa , A.Geetha

*School of Architecture and Planning, Government Engineering College, Thrissur, Kerala, India.  
Email: 10arathi@gmail.com*

### CEASIDE 300

**Impact of urbanization on flooding in Chalakudy river**

Sethu Parvathy, Reeba Thomas

*Department of Civil Engineering, Govt. Engineering College, Thrissur , sethuparvathy.95@gmail.com*

### CEASIDE 325

**Shoreline-change detection at Kodungallur – Chettuva region in Kerala state**

T K Amrutha, Reeba Thomas

*Department of Civil Engineering, Government Engineering College Thrissur, Thrissur, Kerala, India, amrutharamachandrantk@gmail.com*

### CEASIDE 327

**Flood Modelling and Breach Analysis of Karuvannur River in Kerala State**

Anupriya A<sup>1</sup>, Reeba Thomas<sup>2</sup>, Anoop R<sup>3</sup>

*<sup>1,2</sup> Department of Civil Engineering, Government Engineering College Trichur, Thrissur-680009, Kerala, India, reeba@gectcr.ac.in*

*<sup>3</sup>Assistant Director, Hydrology Section, Irrigation Department, Thrissur, Kerala, India*



**CEASIDE 333****Blue and Green Water Security Assessment of Karuvannur Watershed**

Anjana Ramesh<sup>1</sup>, Reeba Thomas<sup>2</sup>

*Department of Civil Engineering, Government Engineering College Trichur, Thrissur - 680009, Kerala, India ,Email: anjanarameshs10@gmail.com*

**CEASIDE 363****Appraising the need for disaster mitigation in existing planning documents of Municipal Corporations of Kerala in the event of past disasters**

Arun Shankar. M, Prof. Bindu. C.A

*School of Architecture, Government Engineering College, Thrissur, Kerala, India*  
*binduca@gectr.ac.in*

**CEASIDE 394****Delineation of Water body from Sentinel 2 MSI imagery – A comparative study**

Sherjah P. Yusuf Ali, N. Sajikumar

*Government Engineering College, Ramavarmapuram, Thrissur, Kerala, India 680009*

**CEASIDE 407****Cities of dark tourism -Prominence & Influence of Heritage in Conservational Planning of Dark Cities**

Atheeni Menon E , Jency P. A.

*School of Architecture and Planning, Government Engineering College, Thrissur, Kerala, India*  
*E-mail: atheeni87@gmail.com*

**CEASIDE 437****Nocturnal cities: Applicability in Indian context**

Archana.T, Prof.Sujith.K.M

*School of Architecture and Planning, Government Engineering College, Thrissur, India*  
*Email:gopiarchana95@gmail.com*

**CEASIDE 447****Blue Covenant: Planning Strategies for Water Conservation**

Angel Steffy Thomas, Geetha A

*School of Architecture and Planning, Government Engineering College, Thrissur, India*  
*angelthomas0812@gmail.com*

**CEASIDE 457****Need Based Approach: A Perspective for Sustainable Housing**

Sujith K M<sup>1</sup>, Biju C A<sup>2</sup>, Subhash Varma C R<sup>3</sup>, Dr. Dili A S<sup>4</sup>

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*<sup>3,4</sup>TKM College of Engineering, Kollam, Kerala, India*

**CEASIDE 458****Relevance of Sustainability in Inland Water Tourism**

Surabhi S Pai, Prof. Shijna N P

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*E-Mail: surabhispai12@gmail.com*

**CEASIDE 479****Upstream flood hydrograph prediction of Chalakkudy river**

A Jeslin Jose, K S Sumam

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**CEASIDE 483****Understanding the need of satellite towns in India**

Ananda Krishnan S, Sujith K M

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**CEASIDE 484****Impacts of abandoned quarries on the human settlements**

Angel Roselin, Prof. Biju C.A

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*E-mail: angelroselin34@gmail.com*

**CEASIDE 488****Urban Liquid Waste Management: A Bane to Boon-A study of Palakkad Town in Kerala**

S. Aneesa , N. Arathi , A. Geetha

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**CEASIDE 492**

**Alienation of tribal lands: Need for land management in tribal development**

Saranya A S, Jency P A

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**CEASIDE 511**

**Machine learning applications in structural engineering-A review**

Haneena Jasmine P, S Arun

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**Papers presented by Faculty, Staff and Students of GECT in International Conference on Recent Advances in Materials Processing and Technology for Sustainability (RAMPTS 2020).**

**RAMPTS 32**

**Impact of TQM practices on firm's performance: investigation of spinning mills**

K Soumya, K P Satish

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**RAMPTS 46**

**Influence of Rogers' theory of innovation of diffusion on customer's purchase intention – a case study of solar photovoltaic panels**

Nirmal M Menon, I Sujatha

*Dept. of Production Engineering, Government Engineering College, Thrissur, Kerala state, India, Email: itsmenirmal.menon@gmail.com*

**RAMPTS 51**

**Recent developments in ejector refrigeration system**

P J Manoj V Lijo

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**RAMPTS 58**

**Optimization studies on aqueous two-phase extraction of hexavalent chromium from contaminated aqueous solutions**

S K Suji<sup>1</sup>, M Sinju<sup>2</sup>, K B Radhakrishnan<sup>3</sup>

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**RAMPTS 61**

**The oxygenic photogranule for wastewater treatment process**

Adil Muhammed<sup>1</sup>, Avatar N Poduval<sup>2</sup>,

Piyush Oonnikrishnan<sup>3</sup>, Pranav K Narayanan<sup>4</sup>, Yaduraj K<sup>5</sup>.

<sup>1</sup> *Government Engineering College, Kozhikode*

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**RAMPTS 167**

**Cloud based data management for experiential products: A case study on motion pictures**

J L Jagath<sup>1</sup>, P R Shalij<sup>2</sup>, H Naduthodi<sup>2</sup>, A M Hisam<sup>3</sup>

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**RAMPTS 179**

**Evaluation of tribological characteristics of natural garlic oil as an additive in rubber seed oil**

K S Jesbin, D Mahipal

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<sup>2</sup> *E-mail: ksjesbin@gmail.com*

**RAMPTS 192**

**The effect of free fatty acids on the tribological properties of karanja oil**

J Joshy, Naveen, D Mahipal

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**RAMPTS 200****Comparative study on iron removal using chemically and greenly synthesised zero-valent iron nanoparticles**

Antony Jismy<sup>1</sup>, V Meera<sup>2</sup>, P Raphael Vinod<sup>3</sup>

<sup>1,2</sup>Department of Civil Engineering, Government Engineering College, Thrissur, APJ Abdul Kalam Technical University, Kerala, India, Email : [jismykannappilly@gmail.com](mailto:jismykannappilly@gmail.com)

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**RAMPTS 226****Efficacy of nanochitosan impregnated polyurethane foam in removing phosphate from aqueous solutions**

P Sasidharan Anjali<sup>1</sup>, V Meera<sup>2</sup>, P Raphael Vinod<sup>3</sup>

<sup>1,2</sup>Department of Civil Engineering, Government Engineering College, Thrissur, APJ Abdul Kalam Technical University, Kerala, India, Email : [vmeera@gectcr.ac.in](mailto:vmeera@gectcr.ac.in),

<sup>3</sup>Department of Chemistry, Government Engineering College, Thrissur, APJ Abdul Kalam Technical University, Kerala, India

**RAMPTS 227****Fabrication and dry sliding wear analysis of centrifugally casted A 356- 10% SiCp functionally graded metal matrix composites at different rotational speed**

Arjun Mohan<sup>1,3</sup>, Sajikumar K S<sup>1</sup>, Karun V Gopal<sup>2</sup>

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**RAMPTS 246****Simulation of Methoxy methyl heptane (MMH) production using Unisim Design R460.1**

Aneesha M.S, Manilal A M

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E-mail:[aneesha5ms@gmail.com](mailto:aneesha5ms@gmail.com), [manilalam@gectcr.ac.in](mailto:manilalam@gectcr.ac.in)

**RAMPTS 249****Preparation of Thermally and Chemically Activated Charcoal from Coconut Shell and Adsorption Studies for Iron Removal from Drinking Water**

Jasna K K, Padmavathy K S, Haseena P V

Department of Chemical Engineering, Government Engineering College, Kozhikode, Kerala, India, Email: [padma426@gmail.com](mailto:padma426@gmail.com)

**RAMPTS 251****Preparation and characterization of thermal conductivity enhanced shape stabilized phase change composite for thermal energy storage**

Manju M S, Alandev S

Department of Chemical Engineering, Government Engineering College, Thrissur, Kerala state, India, Email:[devansdev7@gmail.com](mailto:devansdev7@gmail.com)

**RAMPTS 278****Unisim Based Simulation and Analysis of Crude Oil Distillation**

Shamna A Rahman, R Anjana

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**RAMPTS 289****Synthesis of starch-graphene oxide composite membrane for heavy metal removal**

B SajeenaBeevi, K Blessmy Rose, K AleenaShelvi, M Anand Kumar,Reethu Mathew

Department of Chemical Engineering, Government Engineering College Thrissur, Kerala, India  
E-mail: [blessmyrose@gmail.com](mailto:blessmyrose@gmail.com)

**RAMPTS 317****An experimental study on the effect of manganese dioxide & ferric oxide nano-particles for sewage water decontamination**

Jishnu M, Manjith Kumar B, Jishnu Narayanan

Department of production engineering, Government Engineering College, Thrissur, Kerala, India. , E-mail: [jishnumoochikkal70@gmail.com](mailto:jishnumoochikkal70@gmail.com)



### **RAMPTS 330**

#### **An assessment on the effect of titanium dioxide & iron oxide nano-particles in industrial waste water decontamination**

Jishnu Narayanan, Manjith Kumar B, Jishnu M  
Department of production engineering, Government Engineering College, Thrissur, Kerala, India. E-mail: jishnunarayanan11@gmail.com

### **RAMPTS 338**

#### **Numerical Analysis and Simulation of Micro- EDM Plasma in De-ionised Water**

Leeba Varghese, P Vysakh, K K Manesh  
Department of Mechanical Engineering, Government Engineering College, Thrissur, Kerala, India, Email: leebavarghese1982@gmail.com

### **RAMPTS 348**

#### **Sustainable product development using balanced scorecard perspectives**

S C Vijayan<sup>1</sup>, P R Shalij<sup>2</sup>, P L Biju<sup>3</sup>  
<sup>1,2</sup>Department of Production Engineering, Government Engineering College, Thrissur, Kerala, India, E-mail: salini523@gmail.com  
<sup>3</sup>Department of Mechanical Engineering, Jyothi Engineering College, Thrissur, Kerala, India.

### **RAMPTS 361**

#### **Preparation of chip type negative temperature coefficient thermistor**

P PVishnupriya<sup>1</sup>, Thomas Jaini<sup>1</sup>, Binoy Mariya<sup>1</sup>, P Nair Praseetha<sup>1</sup>, R Ranjana<sup>1</sup>, B Sajeenabeevi<sup>1</sup>, M MJayakumar<sup>2</sup>  
<sup>1</sup>Department of Chemical Engineering, Government Engineering College, Thrissur, Kerala, India, vishupriya.595@gmail.com  
<sup>2</sup> Souparmika Thermistors and Hybrids Private Limited, Kolazhy, Thrissur, Kerala, India

### **RAMPTS 449**

#### **Effect of tool axis offset and relative position of materials on the performance of dissimilar friction stir welded aluminium alloy joints – an overview**

K Subrahmanian<sup>1</sup>, K K Ramachandran<sup>2</sup>, Rajeev Vamadevan<sup>3</sup>

<sup>1,2</sup>Department of Mechanical Engineering, Government Engineering College, Thrissur, Kerala, India, E-mail: subrahmaniank.k@gmail.com

<sup>3</sup>Department of Mechanical Engineering, College of Engineering Trivandrum, Thiruvananthapuram, Kerala, India

### **RAMPTS 493**

#### **Assessment of River Water Quality Indices based On various Fuzzy Models and Arithmetic Indexing Method**

A H Divya, P A Soloman  
Department of Chemical engineering, Government Engineering College, Thrissur, Kerala, India, - Mail: pasolomon@gmail.com

### **RAMPTS 496**

#### **A study on electrochemical oxidation of phenol for wastewater remediation**

N Divya, A V Sreerag, Yadukrishna, Tiwin Joseph, P A Soloman  
Department of Chemical Engineering, Government Engineering College Trichur, Thrissur, Kerala, India- 680009, E-mail: sreeragav1997@gmail.com

### **RAMPTS 497**

#### **Ultrasound-assisted synthesis and characterization of sesame oil based nanoemulsion**

Kumar Namratha Vinaya, Ann Mary John, Mona Mangsatabam, Mercy Anna Philip  
Department of Chemical Engineering, Government Engineering College, Thrissur, Kerala, India. PIN- 680009, E-mail: annmaryjohn97@gmail.com

### **RAMPTS 498**

#### **Estimation of effective young's modulus based on 3-D finite element model with particle-matrix interface for metal matrix composites**

K P Irfan Ahammed<sup>1</sup>, Aswathy A Narayanan<sup>2</sup>, R S Sudheesh<sup>3</sup>



<sup>1</sup> Department of Mechanical Engineering, MGM College of Engineering and Pharmaceutical Sciences, APJ Abdul Kalam Technological University, Kerala, India

<sup>2,3</sup> Department of Mechanical engineering, Government Engineering College Thrissur, APJ Abdul Kalam Technological University, Kerala, India  
Email: irfanbinsalim@gmail.com

#### RAMPTS 501

**Experimental study and optimization of thermal and tribological properties of epoxy hybrid polymer composite reinforced with micro sized ZrB<sub>2</sub> and PTFE particles**

Aswathi A Narayanan, R S Sudheesh  
Department of Mechanical Engineering, APJ Abdul Kalam Technological University, Government Engineering College, Thrissur-680009, India,  
Aswathiii333@gmail.com

#### RAMPTS 509

**Dynamic simulation of manufacture of Styrene by the catalytic dehydrogenation of ethyl benzene**

Kishore Bose, Soloman P. A.  
Department of Chemical Engineering, Government Engineering College, Thrissur, Kerala, India  
Email id: kishorebose2@gmail.com

#### RAMPTS 510

**Jet mixing enhancement of a supersonic twin jet nozzle using rectangular tabs**

P N Ambily<sup>1</sup>, A K Mubarak<sup>2</sup>, L Rekha<sup>3</sup>, Abdul Samad<sup>4</sup>  
<sup>1,3,4</sup>Dept. of Mechanical Engg., GEC Thrissur, Kerala, India, E-mail: ambilyaero@gectcr.ac.in  
<sup>2</sup>Dept. of Mechanical Engg., GEC Idukki, Kerala, India

#### RAMPTS 517

**Computational study of mach 4.9 flows through a scramjet intake in started mode**

Alvin Alex, V Lijo  
Department of Mechanical Engineering, Government Engineering College, Thrissur, (APJ Abdul Kalam Technological University, Kerala India), Email: alvintalex95@gmail.com

#### RAMPTS 525

**Comparative fluidity study of AA7075 unreinforced alloy and Al<sub>2</sub>O<sub>3</sub> reinforced composite**

P A Roshitha, M S Arun  
Department of Mechanical engineering, Government Engineering College, Thrissur, Kerala, India, Email: roshithapa15@gmail.com

#### RAMPTS 526

**Proposing a new design for segmental bone defect (SBD) tibial implant unit cell**

K S Sayooj, M S Arun  
Department of Mechanical engineering, Govt. Engineering College, Thrissur, Kerala, India. E-mail: sayoojks007@gmail.com

#### RAMPTS 527

**Simulation analysis of stirring parameters in stir casting of AA7068/VC/C hybrid metal matrix composite using ANSYS**

Jasmine Poullose, Arun M S, P A Abdul Samad  
Department of Mechanical Engineering, Government Engineering College, Thrissur, Kerala, PIN:680009, India, E-mail: jasmine.cheruvathoor@gmail.com

#### RAMPTS 530

**A methodology to analyze undergraduate engineering student's campus start-up activities and its scope of B2C companies**

M Pradeep<sup>1</sup>, K P Satish<sup>2</sup>

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<sup>2</sup>Production Engineering, Government Engineering College, Thrissur, Kerala, India

#### RAMPTS 551

**The effects of winglet on hawt blade and the optimum ratio between wing and winglet dimensions**

Pradeep S Pillai, A.R Harikumar  
Department of Production Engineering, Government Engineering College, Thrissur, Kerala, India. <sup>1</sup>pradeepspillai.sp@gmail.com



**PICC 48**

**Performance Analysis of Mother Wavelet Functions and Thresholding Methods for Denoising EEG Signals during Cognitive Tasks**

T A Suhail<sup>1</sup>, K P Indiradevi<sup>2</sup>, Suresh A Poovathinal<sup>3</sup>, Ayyappan Anitha<sup>4</sup>

<sup>1</sup>Department of Electronics and Communication Engineering Government Engineering College Thrissur Kerala, India suhailta@gmail.com

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<sup>3</sup>Department of Neurology Valiyath Institute of Medical Sciences Karungapally Kerala, India

<sup>4</sup>Department of Neurogenetics Institute for communicative and Cognitive Neursciences Shoranur Kerala, India

**PICC 67**

**Power Quality problems And Mitigation Using D-STATCOM With H-bridge topology In Solar PV Integrated Distribution System.**

Sivarajan K N <sup>1</sup>, Dr. Jasmin E A <sup>2</sup>, Dr. B Jayanand <sup>3</sup>

<sup>1,3</sup>GEC, Thrissur, Kerala, India

<sup>2</sup>GEC, Idukki, Kerala, India, sivarajankn1@gmail.com

**PICC 72**

**Quadtree Compression Based Method for High Capacity Reversible Data Hiding in Encrypted JPEG Images**

Aiswarya Mohan<sup>1</sup>, Prof. Helen K J<sup>2</sup>

<sup>1,2</sup>Department of Computer Science and Engineering Government Engineering College Thrissur, India helenkj28@gmail.com

**PICC 86**

**Comparative Analysis of Single phase Bridgeless Buck Rectifier and Single phase Multilevel Buck Rectifier**

Veena Raj<sup>1</sup>, Binoy B B<sup>2</sup>

<sup>1,2</sup>Department of Electrical Engineering Government Engineering College, Thrissur Kerala, India veenaanadu20@gmail.com

**PICC 88**

**Movie Genre Prediction and Recommendation Using Deep Visual Features from Movie Trailers**

Radhika V M<sup>1</sup>, Dr. Swaraj K P<sup>2</sup>

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**PICC 151**

**Convolutional Neural Network Based Image Classification And New Class Detection**

Akshaya B<sup>1</sup>, Prof. Kala M T<sup>2</sup>

<sup>1,2</sup>Department of Computer Science and Engineering Government Engineering College Thrissur, India kalakrishnakumar22@gmail.com

**PICC 236**

**Comparative Analysis of Path Control Strategies for Unmanned Quadrotor Aerial Vehicle**

Abitha M.A, Abdul Saleem P.K.

Department of EEE Government Engineering College, Thrissur, APJ Abdul Kalam Technological University Kerala, India, mailabitha@gmail.com

**PICC 237**

**Scalable Generic Platform For Big Data Visualization**

Chelsa C<sup>1</sup>, Aswin P<sup>2</sup>, Jainy Joy<sup>3</sup>, Dr. Swaraj K.P<sup>4</sup>

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<sup>3</sup>Department of Computer Applications Bharathiar University Coimbatore jainyjoy97@gmail.com

**PICC 255**

**Application of Signal Processing in the Detection of Urinary Dysfunction: A Review on Different Techniques**

<sup>1</sup>Navya V N, <sup>2</sup>Meenakshy

Department of Electrical and Electronics Engineering Government Engineering College, Thrissur 2meenakshy@gectcr.ac.in



**PICC 257**

**A Modified Droop Control Method for DC Microgrid with Improved Voltage Regulation and Current Sharing**

Ramu Dadi<sup>1</sup>, Meenakshy K<sup>2</sup>, Suresh K Damodaran<sup>3</sup>  
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Government Engineering College, Thrissur Affiliated to  
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**PICC 270**

**Identification of shockwave and muzzle blast in a gunshot signal using frequency analysis techniques**

Faeza N.S<sup>1</sup>, Job Chunkath<sup>2</sup>, Nimmy Pathrose<sup>3</sup>, Rajesh KR<sup>4</sup>  
<sup>1,2</sup>*Electronics and Communication Engineering  
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<sup>3,4</sup>*Strategic Electronics group Centre for Development of  
Advanced computing (CDAC), Thiruvananthapuram  
Kerala, India*

**PICC 276**

**A Survey of Bidirectional DC/DC Converters for Battery Storage Applications in Distributed Generation Systems**

Drisya K Sasi, Jiji K S  
*Dept. of Electrical Engineering Govt. Engineering  
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**PICC 399**

**Bridging the Broadband Gap and Power Up To 5G**

Athira V E, Nelson K J  
*Department of ECE Government Engineering College  
Thrissur, India athirave996@gmail.com*

**PICC 443**

**The Untapped Potential of Feature Selection for Emotion Recognition: Literature Review**

Anjitha P PG<sup>1</sup>, Dhanya K R<sup>2</sup>, Jerritta S<sup>3</sup>, Sindhu N<sup>4</sup>  
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**PICC 444**

**Harmonic Reduction and Power Factor Improvement of BLDC Motor Drive System Using a Selective Harmonic Elimination PWM Based Controller**

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Engineering College Thrissur, Kerala, India.  
parthkarnavar@gmail.com, jishavr@gectcr.ac.in*

**PICC 461**

**Transformer Network for video to text translation**

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Engineering College Thrissur Kerala,  
Indiamubashiranechikkat@gmail.com*

**PICC 469**

**Solar Umbrella Using L3C Resonant Converter**

Gautham Mohan Jerin Thomas Koola Gokul Dileep K Divya N A<sup>1</sup>  
*Department of Electrical & Electronics Engineering,  
Government Engineering College, Thrissur,  
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**PICC 487**

**A Survey on Recent Approaches in Image Reconstruction**

Vijina P, Dr. Jayasree  
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Government Engineering College Thrissur  
Kerala, India vijivijina666@gmail.com*

**PICC 500**

**Classification of Motor Imagery Signals Using ANFIS to Control a Robotic System**

Sunny T.D<sup>1</sup>, Roshitha Raj<sup>2</sup>, Meenakshy K<sup>3</sup>  
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**PICC 508**

**System Dependence Graph based test case generation for Object Oriented Programs**

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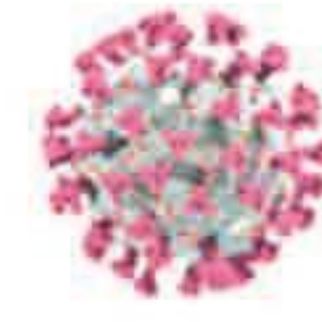
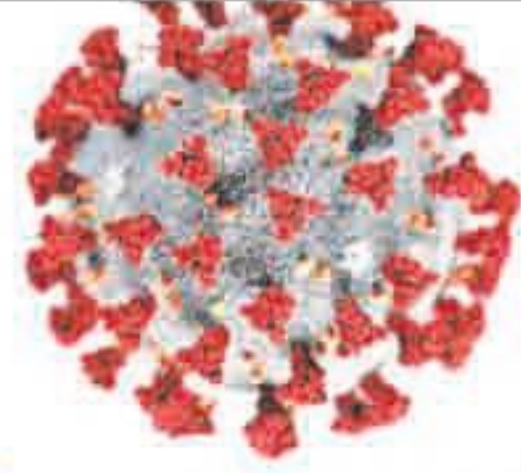
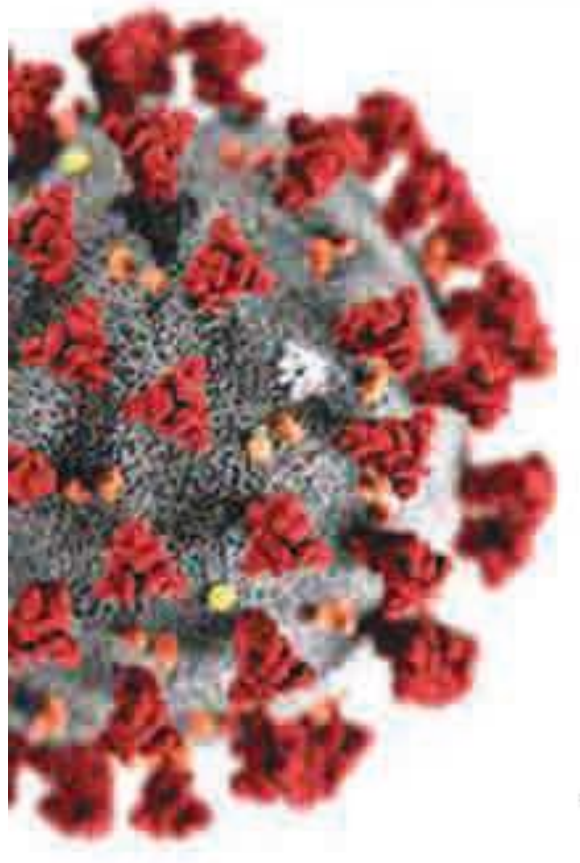
## Conference Publications

Sl No	Authors name	Title of the Paper	Name of Conference & Dates
1	Najiya Nesrin A.K, Sukanya M, Joseph K D	Switched Dual Input Buckboost Inverter for Continuous Power Operation with Single Stage Conversion	IEEE International Conference on Power Electronics and Renewable energy Applications (PEREA 2020), Kannur, Kerala, 28/11/2020
2	Sukanya M, NajiyaNesrin A.K, Joseph K D	A Single Phase Cascaded Switched Boost Five Level H-Bridge Inverter	IEEE International Conference on Power Electronics and Renewable energy Applications (PEREA 2020),Kannur, Kerala, 28/11/2020
3	Shafla Jasmine H, M J Laly	Optimal design of Power System Stabilizer for Damping Low Frequency Oscillations in a Multi-Machine Power System	IEEE International Conference on Power Electronics and Renewable energy Applications (PEREA 2020),Kannur, Kerala, 28/11/2020
4	P T ShibilaSherin, P Ramesh Kumar	Analysis and Implementation of a Single Input Dual Output Boost Derived Hybrid Converter	IEEE International Conference on Futuristic Technologies in Control Systems and Renewable Energy, MES Kuttipuram, 23/09/2020
5	C Dimna Denny, P Ramesh Kumar, E. A Jasmin	Super Twisting Algorithm Based Slip Ratio Control of Electric Vehicles	2020 IEEE International Power and Renewable Energy Conference (IPRECON), Karunagapalli, 1/11/2020
6	V. Sujo, P. Ramesh Kumar, E. A. Jasmin	Realizing Autonomous and Intelligent Smart Grid using Multi-Agent Based Control System	IEEE International Conference on Power electronics and Renewable energy Applications (PEREA 2020), Kannur, Kerala, 27/11/2020
7	J Nayana, M Nandakumar, P. Ramesh Kumar	Comparison of DC to DC Converters for PV Application using PSIM Model	IEEE International Conference on Power electronics and Renewable energy Applications (PEREA 2020),Kannur, Kerala, 27/11/2020
8	Ajith Subramanian, Jiji K S, Diljith Chandran, Abhiram A	A Lead Acid Battery Charger using Modified Bridgeless Configuration of SEPIC PFC Converter	23rd International Conference on Electrical Machines & Systems (ICEMS 2020), Hamamatsu, Japan, 24 - 27 November 2020, 26/11/2020
9	Drisya K Sasi, Jiji K S	Interleaved Bidirectional DC/DC Converter Topologies for Solar based Stanalone Distributed Generation Systems	IEEE International Conference on Power Systems Technology (POWERCON), IISc, Bangalore, 14 - 16 September 2020, 15/09/2020
10	Drisya K Sasi, Jiji K S	A Survey of Bidirectional DC/DC Converters for Battery Storage Applications in Distributed Generation Systems	IEEE International Conference on Power, Instrumentation, Control and Computing (PICC 2020), 17 - 19 December 2020, 17/12/2020
11	Abitha M A, Abdul Saleem P K	Comparative Analysis of Path Control Strategies for Unmanned Quadrotor Aerial Vehicle	IEEE International Conference on Power, Instrumentation, Control and Computing (PICC 2020), 17 - 19 December 2020, 17/12/2020



12	Vishnu P Madhanmohan, M Nanda kumar, Abdul Saleem	Durer's Square Based Photovoltaic Configuration to Mitigate Partial Shading Losses	IEEE International Conference on Power electronics and Renewable energy Applications (PEREA 2020), Kannur, Kerala, 27/11/2020
13	Lallumol K Johny, Jaison Mathew	A Three-Phase Five-Level Active-Neutral-Point-Clamped Z-Source Inverter	IEEE International Conference on Power Electronics, Drives and Energy Systems, (PEDES), 17 - 21 Decemeber 2020, 18/12/2020
14	Devika A Nair, Lallumol K Johny, Jaison Mathew	A Three-Phase Enhanced Boost switched Inductor Z-Source Based Three-level Inverter-fed Induction Motor Drive	IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), 17 - 21 Decemeber 2020, 19/12/2020
15	Felix Thomas, Jaison Mathew	Transformer-Less Solar PV Inverter With Fuzzy Assisted MPPT for Standalone/ Grid Connected System	IEEE International Conference on Recent Advances in Intelligent Computational Systems (RAICS2020), 09/12/2020
16	Reshma P, Suresh K Damodaran	Optimal Allocation of Renewable Energy Resources in Microgrid Considering Stchatic Behaviour	IEEE International Power and Renewable Energy Conference, Oct 30 to Nov 1st 2020 (IPRECON 2020), 31/10/2020
17	Roshin K R, Bindumol E K	Firefly algorithm based tuning of integral controller for frequency regulation of hybrid two area power system with nonlinearities and electric vehicles	IEEE International Conference on Power electronics and Renewable energy Applications (PEREA 2020), Kannur, Kerala, 27/11/2020
18	Roshin K R, Bindumol E K	Firefly algorithm based tuning of integral controller for frequency regulation of hybrid two area power system with nonlinearities and electric vehicles	International conference on intelligent Manufacturing and Energy sustainability (ICIMES 2020), Malla Reddy college of Engg.&Technology, Hyderabad (Published in Springer – Smart Innovation, Systems and Technologies (SIST) Series), 21/08/2020
19	Jitheesh P Gopalan, Binitha Joseph Mampilly	A versatile statcom for ssr mitigation and dynamic reactive power management in dfig based wind farm connected to series compensated line	2020 IEEE International Power and Renewable Energy Conference (IPRECON), Karunagappally, 31/10/2020
20	Binitha Joseph Mampilly, Sheeba V S	Transmission lines fault detection using empirical mode decomposition in a grid-connected power system	IEEE International Conference on Power electronics and Renewable energy Applications (PEREA 2020), Kannur, Kerala, 27/11/2020
21	Jaseem V.P, Eldhose Mathew, Adarsh S Raja, Anju P.B and Joseph K.D.	Dual Input Boost Converter for Renewable Energy Applications	International Conference on Power, Energy, Control, Signals and Systems (IPECS 2020), TKM College of Engineering Kollam,





## GEC's Battle against COVID-19 is continuing!!

### Robotic Nursing Staff (RoNS), E- Bike and Patient Management Software

Government Engineering College, Thrissur have deployed 6 automatic Robot nurses and one E-bike in the biggest Covid First Line Treatment Centre (CFLTC), Nattika of Kerala with 1400 beds. The project is funded by NABARD under Rural Infrastructure Promotion Fund (RIPF) and implemented under the leadership of Dr.Satheeshan T V, District Programme Manager, Arogyakeralam Thrissur.



The Automatic Robot nurse is an implementation of the Industrial Line follower robot. This Robot is capable of taking values like temperature, pressure and oxygen level of patients who are admitted in CFLTC. It is the first time this kind of Robot is implemented in medical fields with automated controls with minimum human assistance which can cover a large number of patients in a single stretch. The doctors can communicate with patients using the telemedicine feature implemented in the Robot. T. Robots are deployed in each section having patient strength of 200 in CFLTC. The robots can interact with patients and their needs can be communicated with the control centre.

The e-bike is a manned vehicle which is able to carry food and other materials to stations inside CFLTC. About 100kgs can be carried in a single stretch which empowers the CFLTC in efficient transportation in food distribution of food to patients in minimum time.





# BATTLING COVID-19

Patient management software developed for making bed allocation and patient management efficient. This software is deployed in CFLTC. It has features like pictorial layout of beds, patients register and communication channel for data transfer between control centre and nursing stations inside CFLTC.

Equipment/Software	Student Members	Mentor
Robot nurse	Sourav PS (PE), Aswin Kumar K - S7 (ME), Tony C abraham (PE), Ajay Aravind (PE), Sidharth V (CSE)	Dr.Ajay James
E - bike	Muhammad Arif O S, S7(PE), Evin Wilson, S7 (PE)Glinz George S7 (PE), PranavBalachandran S7(PE)	Dr.Ajay James
Patient management software:	KowsikNandagopan D - S5 (CSE), Irshad PI (CSE), Arunjishnu (CSE)	Dr.Ajay James







## APJAKTU Research Students of Our Institution

Sl. No.	Name of Student	FT/PT/NDF	Discipline/Subject	Supervisor	Co-Supervisor
1	Shimna A	PT	Mathematics	Dr. Viswanath C N	
2	Sindu Mathew P	PT	Stochastic Modelling	Dr. Viswanath C N	
3	Viji EP	PT	Stochastic Process	Dr. Viswanath C N	
4	Reya Kuruvila	PT	Mathematics	Dr. Viswanath C N	
5	Shiny K S	PT	Mathematics	Dr. Viswanath C N	
6	Sivakumar K S	PT	Mathematics	Dr. Sajeer S Nair	
7	Ranjith K R	PT	Mathematics	Dr. Sajeer S Nair	
8	Smija Skaria	PT	Mathematics	Dr. Sajeer S Nair	
9	Remya P K	FT	Chemical Engineering	Dr. Manju M S	
10	Stephy Jose	ADF	Chemical Engineering	Dr. Sajeena Beevi B	
11	Ranjana R	PT	Chemical Engineering	Dr. Anjana R	Dr. Sajeena Beevi B
12	Sanya C S	PT	Chemical Engineering	Dr. Fasnabi P A	Dr. Manju M S
13	Asha Farsana M	NDF	Civil Engineering	Dr. Sajikumar N	Dr. Subaida E A
14	Sherjah P Yusuf Ali	FT	Hydrology, remote sensing	Dr. Sajikumar N	
15	Praseeja A V	FT	Civil Engineering/Ground water modelling	Dr. Sajikumar N	
16	Athira S	NDF	Geotechnical Engg	Dr. Subaida E A	
17	Lakshmi M Divakaran	FT	Civil Engineering	Dr. Subaida E A	
18	Remya Y K	PT	Traffic and Transportation Engineering	Dr. Anitha Jacob	Dr. Subaida E A
19	Jisha Akkara	PT	Transportation Engineering	Dr. Anitha Jacob	Dr. Subaida E A
20	Jismy Antony	NDF	Environmental Engineering	Dr. Meera V	Dr. Vinod Raphael
21	Anjali P Sasidharan	PT	Environmental Engineering	Dr. Meera V	
22	Safeena M K	FT	Electrical Engineering	Dr. Jiji K S	
23	Anish Babu K K	PT	Signal Processing	Dr. Jiji K S	
24	Pavankumar Gongalla	NDF	Power Electronics	Dr. Jiji K S	
25	Sreejith V P	QIP	Data Analytics	Dr. Jiji K S	
26	Drisya K Sasi	PT	EEE / Power Electronics	Dr. Jiji K S	
27	Ramu Dadi	NDF	Electrical Engineering	Dr. Meenakshy K	Dr. Suresh K Damodaran
28	Navya V N	FT	Signal Processing	Dr. Meenakshy K	
29	Adhipa K R	FT	Electrical Engineering	Dr. Jayanand B	
30	Reshma K	FT	Power System	Dr. Jayanand B	
31	Hareesh A	FT	Power Electronics	Dr. Jayanand B	
32	Smrithi K	FT	Electrical & Electronics	Dr. Jayanand B	
33	Jerin George K	PT	Electrical Engineering	Dr. Jayanand B	
34	Nayana J	PT	Power Electronics	Dr. Nandakumar M	Dr. Suresh K Damodaran



35	Vishnu P Madhanmohan	FT	Electrical and Electronics	Dr. Nandakumar M	Dr. Abdul saleem P K
36	Rajitha A R	PT	Electrical Engineering	Dr. Nandakumar M	Dr. Suhara E M
37	Anns George	PT	Electrical Engineering	Dr. Nandakumar M	
38	Remya K P	PT	Electrical Engineering	Dr. Jaison Mathew	Dr. Mathew K
39	Lallumol K Johnny	NDF	Electrical Engineering	Dr. Jaison Mathew	Dr. Rameshkumar P
40	Antony K Peter	FT	Electrical/Power Electronics	Dr. Jaison Mathew	
41	Vasuda K V	PT	Power Electronics	Dr. Jaison Mathew	
42	Jibin George	PT	Electrical Engineering	Dr. Jaison Mathew	Dr. Suhara E M
43	Nirmal Sivarajan	FT	Power Systems	Dr. Jasmin E A	
44	Sivrajan Kakkattil Narayanan	FT	Power Systems	Dr. Jasmin E A	
45	Vishnu C	NDF	Electrical and Electronics	Dr. Abdul Saleem P K	
46	Najva N	NDF	Electrical and Electronics Engineering	Dr. Abdul Saleem P K	
47	Abitha M A	FT	Electronics Engineering	Dr. Abdul Saleem P K	
48	Able Alex	QIP	Electrical Engineering	Dr. Abdul Saleem P K	
49	Hima T	PT	Electrical Engineering	Dr. Abdul Saleem P K	
50	Sujo Vasu	QIP	Electrical Engineering	Dr. Ramesh Kumar P	Dr. Jasmin E A
51	Dimna Denny C	NDF	Electrical Engineering	Dr. Ramesh Kumar P	
52	Prasanth K Prasad	NDF	Electrical Engineering	Dr. Ramesh Kumar P	
53	Athira Remesh	ADF	Electronics	Dr. Sinith M S	
54	Shini M S	PT	Electronics	Dr. Sinith M S	Dr. Sasidharan Sreedharan
55	Suhail T A	PT	Electronics	Dr. K P Indiradevi	Dr. Suhara E M
56	Santumon S D	PT	Signal Processing	Dr. Tara Raveendran	Dr. Reena P
57	Asha J	PT	Electronics	Dr. Santhoshkumar S	Dr. Reena P
58	Soumya K	FT	Management studies	Dr. Sathish K P	
59	Jayadevan P C	FT	Fluid Dynamics/Microchannel Flow	Dr. Pradeep M Kammath	
60	Subrahmanian k	PT	Manufacturing	Dr. K K Ramachandran	Dr. Rajeev Vamadevan
61	Priyanka C P	NDF	Mechanical Engg.	Dr. K K Ramachandran	Dr. Sudeep U
62	Sarath Babu Ramachandran	PT	Mechanical Engg.	Dr. K K Ramachandran	
63	Tennison K Jose	PT	Thermal Engineering	Dr. K K Ramachandran	
64	Tigy Varughese	FT	Heat Transfer	Dr. Jithesh P K	Dr. Soman A R
65	Rejoy P G	FT	Mechanical engineering	Dr. Sudheesh R S	Dr. Soman A R
66	Ejjas Ahammed	FT	Mechanical Engineering	Dr. Sudheesh R S	Dr. Soman A R
67	Aswathi A Narayanan	FT	Production Engineering	Dr. Sudheesh RS	
68	Jagath J L	FT	Production Engineering	Dr. Shalij PR	
69	Salini C Vijayan	FT	Production Engineering	Dr. Shalij PR	
70	Biju P V	PT	Manufacturing / Welding	Dr. Manesh K K	Dr. Rajeev Vamadevan
71	Leeba Varghese Varghese	QIP	Mechanical Engineering	Dr. Manesh K K	
72	Manoj P J	PT	Mechanical Engineering and Allied Branches	Dr. Lijo V	
73	Sumesh Babu C V	QIP	Mechanical Engineering and Allied Branches	Dr. Lijo V	
74	Ambily P N	FT	Mechanical Engineering and Allied Branches	Dr. Rekha L	Dr. Mubarak AK
75	Anju U V	ADF	Computer Science	Dr Swaraj K P	

\* FT : Full Time  
PT : Part Time

NDF : National Doctoral Fellowship  
ADF : AICTE Doctoral Fellowship



## Visiting Faculty Programs & Webinars

IRAC congratulate the coordinators of the programs.

Sl. No	Dept.	Name of Expert	Name of faculty Coordinator	Date	Topic
1	EEE	Dr. Shreelakshmi M.P., Asst. prof., EEE Dept., NIT Calicut	Dr. Lisy E.R.	14.08.2020	Power Electronics in Electric Vehicles
2	EEE	Dr. Abhilash Suryan., Asst. Prof., ME Dept., CE Trivandrum	Dr. Lisy E.R.	01.08.2020	Preparing Effective Technical Papers
3	EEE	Mr.Pradeep Rajagopal Paniker, Vice president Carbot Technology Solutions, Kakkanad	Dr. Lisy E.R.	28.07.2020	Enterprise Architecture an Overview
4	EEE	Mr.Vinod Kumar A., managing Director IT Solutions Bangalore	Dr. Lisy E.R.	11.09.2020	Carrier on Cyber Security and Data Privacy
5	EEE	Ms.SindhuKurup., Programme Manager, Wells Fargo, Bangalore	Dr. Lisy E.R.	14.08.2020	IT in Banking Industry Catering to Millienial Customers
6	ECE	Mr.Athulraj., Co-founder & CEO Quarous, Technologies Pvt.Ltd.,	Prof. Mohamed Salih K K	26.08.2020	Android Programming
7	ECE	Dr.Jagadanand G., Asso.Prof., EEE Dept., NIT Calicut	Prof. Mohamed Salih K K	13.08.2020	IoT based system design using Raspberry Pi
8	ECE	Mr.Kamalasanan P.K., Asst.General Manager – BSNL (Rtd). Ernakulam	Prof. Mohamed Salih K K	14.08.2020	5G Networks
9	ECE	Dr.Nithin George., Asso.Prof., IIT Gandhinagar	Dr. Sinith M.S.	30.09.2020	Alpha to Delta of Digital signal Processing



10	ECE	Dr.G.Shankar, Padmasree Awardee, Founder and Chairman, Habitat Technology Group TVM.	Dr.Thajudin Ahamed V.I.	07.11.2020	Sustainable Engineering –The potential & Promise
11	ECE	Prof.B.M.Muthafa, Scientist, IRTC Palakkad	Dr.Thajudin Ahamed V.I.	12.11.2020	Sustainable Engineering
12	ME	Dr.Rajesh Baby., Prof., ME Dept., St.Joseph., Pala	Dr. Sunil A.S.	04.11.2020	
13	ME	Dr.Sandeep Kumar ., Research faculty of University of Nothigham , UK	Dr. Sunil A.S.	17.10.2020	Fundamentals of CFD
14	ChE	Vijoy A., Project Lead Honeywell Technology Solutions, Bangalore	Dr. Padmavathy K.S.	07.11.2020	Advanced Process Control
15	ECE	Mr.Sujith Paniker, Director functional Engineering, Cyber security consulting ,HIMA Asia Pacific Singapore	Dr.Thajudin Ahamed V.I.	31.10.2020	Sustainable Development-a life cycle management approach
16	ChE	Mr.Ashiff Khan, ARAMCO,Saudi Arabia	Dr. Subin Poullose.	25.09.2020	Instrumentation and Chemical Engineers
17	ChE	Shyju Sukumaran., Sr.Process Instructor, Borouge Technical Training Centre , Abu Dhabi Polymers Co.Ltd., Abu Dhabi, UAE	Dr.Padmavathy K.S.	24.09.2020	Introduction to Petrochemical industry and various role of a chemical Engineer
18	ME	Dr.A.K.Mubarak., Asso.prof., GEC Idukki	Dr. Sunil A.S.	19.11.2020	Gas dynamics and Jet Propulsion
19	ME	V .Balaji., R&D Manager Mercedes Benz, Bangalore	Dr. Sunil A.S.	28.10.2020	Solid Mechanics
20	CSE	Dr P V Venkitakrishnan, Distinguished Scientist and Director at CBPO, ISRO Headquarters	Dr. Ajay James	10.08.2020	Space 2.0: New opportunities





## Sharing Expertise

**Let us share our expertise!**

No	Faculty	Conference/Workshop Details	Role	Title of Speech
1	Dr.K.K. Ramachandran	Webinar Series Organised by Nirmala Institute of Technology, Kerala; 12 – 17 September 2020	Invited Talk	Engineering Education – Scope and Challenges
2	Dr. K.K. Ramachandran	AICTE Sponsored STTP on Innovation in Materials and Industrial Automation, 19 – 24 October 2020 at Dr. NGP Institute of Technology, Tamil Nadu	Invited Talk	Recent Developments in Friction Stir Welding
3	Dr. K.K. Ramachandran	International Conference on Smart and Sustainable Developments in Materials, Manufacturing and Energy Engineering, organized by the Dept. Mechanical Engineering, 23 Nov 2020, NMAM Institute of Technology, Karnataka	Invited Talk	Challenges in Joining of Dissimilar Materials
4	Dr. K.K. Ramachandran	DST Sponsored Two-Day National e-Conference on COVID-19 Pandemic : Emerging Challenges & Future Strategies; 27 -28 November 2020, organised by the Faculty of Sciences, KanyaMahaVidyalaya (The Heritage & Autonomous Institution), Jalandhar, Panjab	Invited Talk	Higher Education – Revolution in Teaching & Learning Triggered by Covid 19
5	Dr. Satish K. P.	National Web based Seminar on Recent Trends in Statistical Theory and Applications-2020, (NSSTA– 2020) Webinar, Department of Statistics, University of Kerala, Thiruvananthapuram - 695 581	Invited Talk	Managing Quality - The Six Sigma Way.
6	Bindu C A	Webinar organized by Dept. of Housing, Govt. of Kerala on 5/10/ 2020.	Invited Talk	Urbanization problems and solutions in the Kerala context

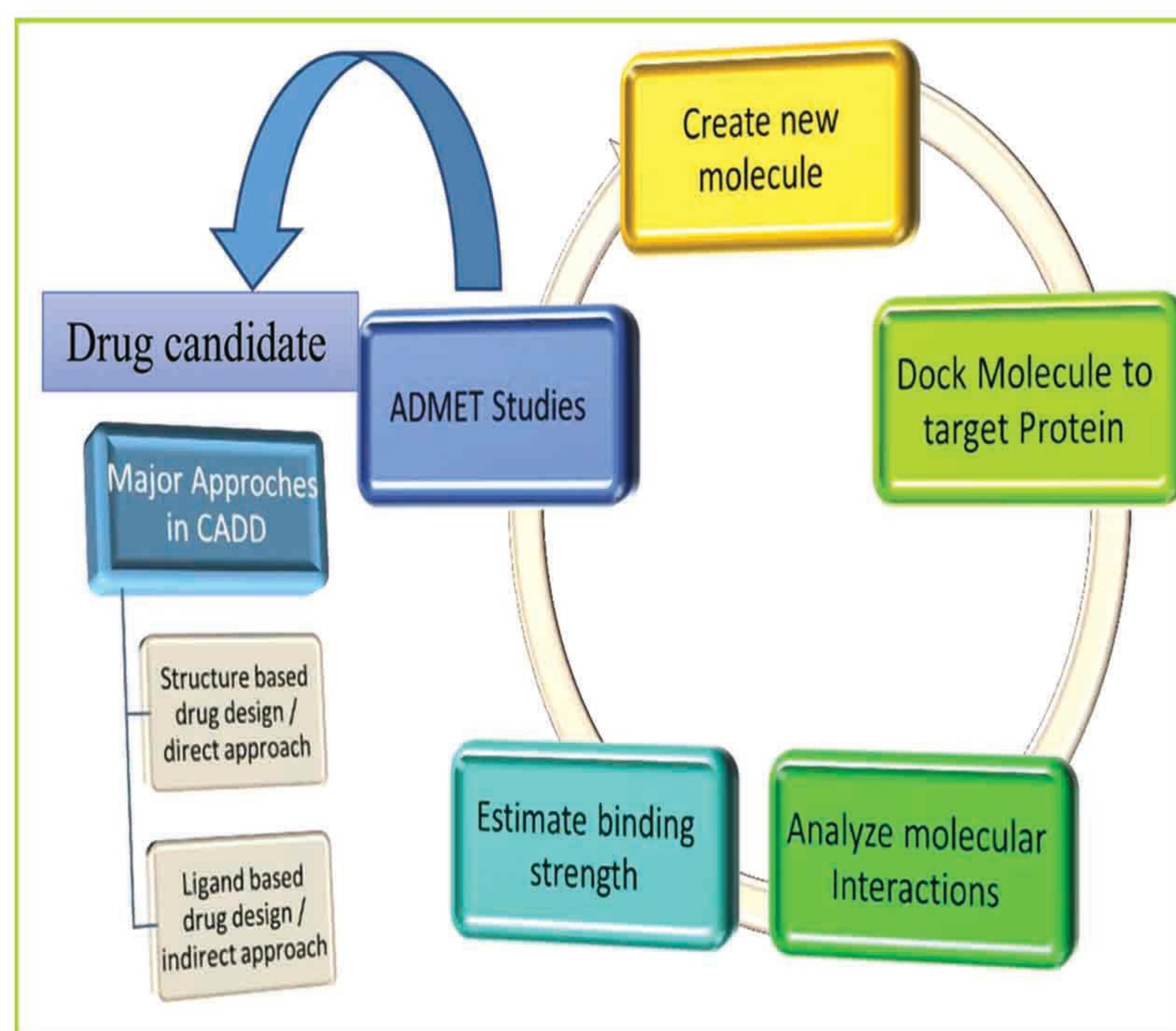


# Computer-Aided Drug Design (CADD)

## ....Reduces Time, Money & Manpower

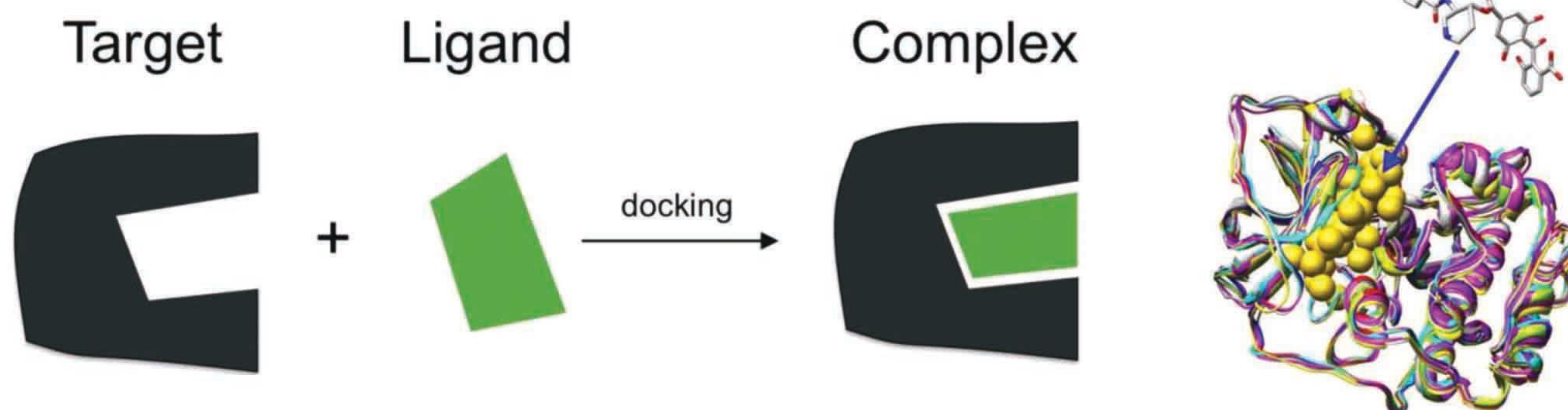
CADD (Computer-Aided Drug Design) helps scientists in minimizing the synthetic and biological testing efforts by focussing only on the most promising compounds. Introducing a new drug in a market is a very complex, risky and costly process in terms of time, money and manpower. Generally it is found that drug discovery and development process takes around 10-14 years and more than 1 billion dollars capital in total. So for reducing time, cost and risk borne factors computer aided drug design (CADD) method is widely used as a new drug design approach. It has been seen that by the use of CADD approaches we can reduce the cost of drug discovery and development up to 50%. CADD consist use of any software program based process for establishing a standard to relate activity to structure.

Dr. Shaju K S  
Associate Professor  
Dept. of Chemistry



*General Principle for Drug design through CADD*

Molecular docking is the process that involves placing molecules (Drug/ Ligand) in appropriate configurations to interact with a receptor (protein structure). Docking may help to investigate the active site in detail and detect uncovered binding pockets or interaction points.



The docking of huge molecule database against a specific target may yield new candidates for further lead development. Furthermore, docking can help to correlate the experimentally determined biological activities, ligand poses, and predicted binding affinities by the docking program, to evaluate the scoring functions and to identify a good score of the target protein.



## Students Achievements

*Congratulations!*



The Chemical Engineering department of Saintgits College of Engineering had conducted an Idea Challenge in connection with 'Ignitron 2020', a national level technical fest organized by the department. With great pride we announce that our team represented by **Abhijith KS** and **Abhishek VS** of S5 Chemical secured the first place for the idea "Electrolytic Disinfectant for Covid 19".

IRAC congratulates the winners!



Abhishek V S



Abhijith K S

Congratulations to the winners...

Maria Roy

Sreelakshmi Lanish



Whyhack-InnovateHer is a hackathon designed by the Kerala Startup Mission with support from TCS and ICFOSS, to promote women entrepreneurs and to encourage them. **Maria Roy** and **Shreelakshmi Lanish** of S5 CSE have won the event as their individual project ideas have been shortlisted among the nine selected projects and with this, they have received an internship opportunity at ICFOSS. Hearty congratulations to both of you!



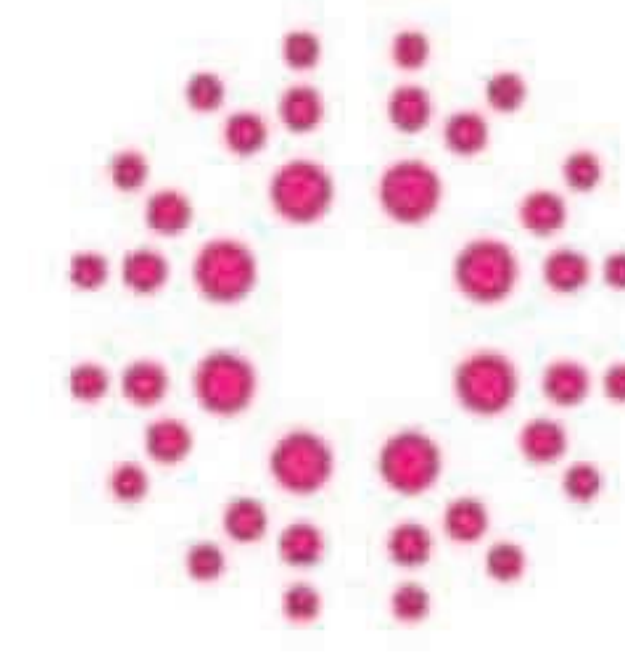
# Congratulations

**Shahana Beegam S** of S7 EEE B has been selected as the Campus Director of HultPrize.

The Hult Prize is an annual, year-long competition in partnership between Hult International Business School and the United Nations, that crowd-sources ideas from MBA and college students after challenging them to solve a pressing social issue around topics such as food security, water access, energy, and education.

This year...Government Engineering College Thrissur is a part of the Hult Prize (The Nobel Prize for Students).

The Hult Prize Foundation, in partnership with the United Nations, transforms how young people envision their own possibilities as leaders of change in the world around them. With a US\$1,000,000 global startup prize as its anchor activity, the Hult Prize has brought impact-focused programs, events and training to over a million students globally in just over a decade.



## HULT PRIZE

Government Engineering College Thrissur


**CAMPUS DIRECTOR  
SHAHANA BEEGAM S**



## Gloria Gopikumar 2nd Annual Lecture

GOVT. ENGINEERING COLLEGE, THRISSUR

**GLORIA GOPI KUMAR  
ANNUAL LECTURE - 2021**



**HOW TO PREPARE FOR THE FAST PACE  
INNOVATION LANDSCAPE**

BY  
**Mr. GANESH V. IYER**  
MANAGING DIRECTOR AND GLOBAL CIO OF NIO &  
ALUMNUS OF GECTHRISSUR

**16<sup>th</sup> JANUARY 2021 8:00 PM - 9:00 PM (IST)**

<https://nio.zoom.us/j/92812389320?pwd=cnNuaW1iUVh3UTg1N2VRUTHGa3QvQT09>

**zoom LIVE** Meeting ID: 928 1238 9320  
Password: 949794

ORGANIZED BY  
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING &  
ALUMNI ASSOCIATION, GOVT. ENGINEERING COLLEGE, THRISSUR, KERALA

GOVT. ENGINEERING COLLEGE, THRISSUR

**GLORIA GOPI KUMAR  
ANNUAL LECTURE - 2021**



Mr. Ganesh V. Iyer is a proud alumni of GECT and graduated in 1988 with honors in Chemical Engineering.

He is the Managing Director and Global CIO of NIO, a Smart and connected premium electric car company in the U.S. He is a Digital development and operations Executive with over 30+ years of experience delivering proven results in various industries including Autonomous Tech, Hi-Tech, Manufacturing and Telecom. He's recognized for re-booting digital organizations in emerging and global markets and is an expert at change management and building relationships across the organization to achieve company goals.

Previously he was Vice President at Tesla Motors for nearly 5 years reporting directly to Elon Musk where he led Tesla's E-Commerce and global information technology organizations. Prior to Tesla, he led senior leadership roles at VMware, Juniper Networks, WebEx, Electronic Data Systems (EDS) and Tata Consultancy Services (TCS). He lives in the Silicon Valley near San Francisco with his family.

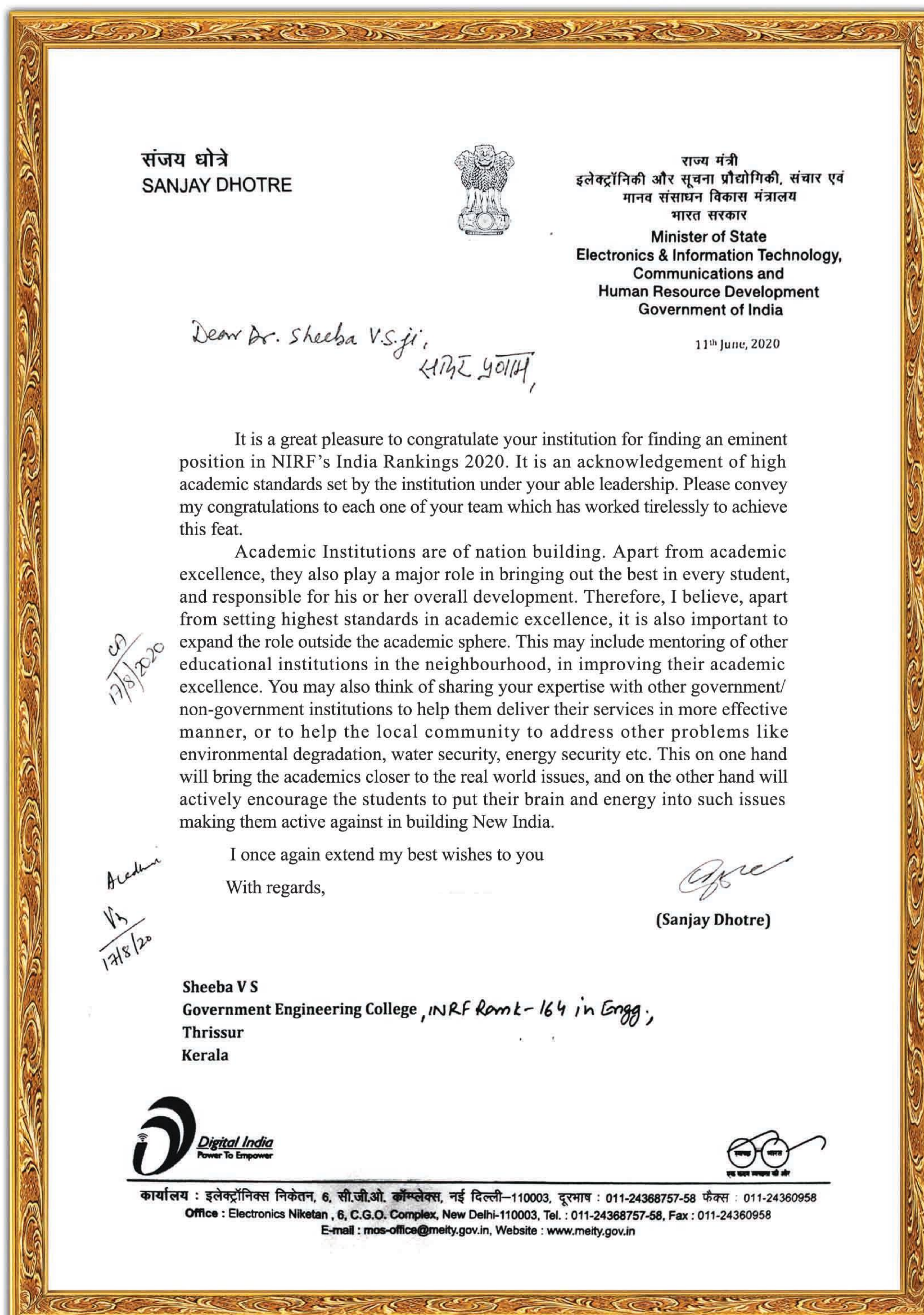


Gloria Gopi Kumar, an Alumna of 1988 batch Electronics and Communication Engineering, Government Engineering College, Thrissur and was settled in USA. This lecture series is initiated by her Classmates and Friends for her memory.



## GECT Bags 164<sup>th</sup> position in NIRF's Ranking for the year 2020

Letter of appreciation from Sri. Sanjay Dhotre, Honourable Minister of State Electronics & Information Technology, Communications and Human Resource Development, Government of India.





# DIGIWIRE

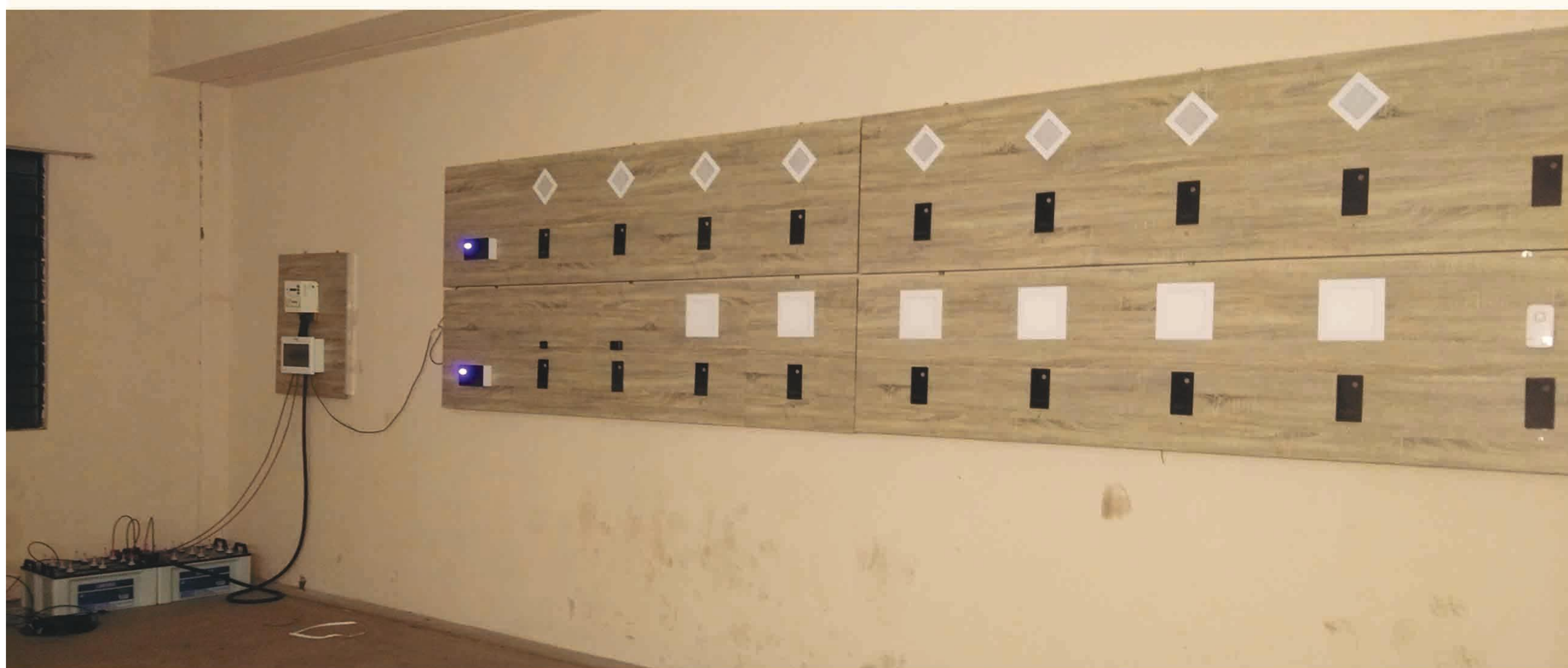
*A Research Project funded by KSCSTE*

This project has been successfully completed with the financial assistance of a KSCSTE. The project is envisioned to meet the growing energy needs, the associated energy crisis, the future demand for renewable energy and its effective utilization. Kerala State Council for Science Technology and Environment (KSCSTE) was selected this project in 2017 and sanctioned an amount of 4.9 lakhs under

**Sajithkumar M**  
Dept. of ECE



APJ Abdul Kalam Youth challenge programme. It was completed successfully in 2020. The technical report has been submitted and the work required to obtain the patent is in progress.



Solar PV system which has emerged as a great source of decentralized power produces DC energy. Batteries which have emerged as a powerful and wide-spread energy storage system can charge/discharge only DC power. Solar-DC systems would save about 35-40% of the power as compared to a solar-AC system. Add to it the energy-savings associated with DC appliances, huge gains in efficiency becomes possible. This efficiency gains translate to lower sized solar panel and smaller battery and therefore cost-savings when compared to a solar-AC system. Such a set-up offers an economical and

affordable solution for off-grid/ near off-grid homes (homes with large power-cuts), and could also be useful for grid-connected homes in saving power-bills as well as providing back-up power. When AC power-line is used, AC to DC and DC to AC converters used further increase the power-loss.

Digi-Wire is a completely digitized electrical wiring topology. It is a specially designed, two-wire electrical wiring topology; all possible loads are connected to two wire- 48V DC bus. A sophisticated carrier-less power line communication protocol is defined exclusively for Digi-wire thus individual control of





each device is possible without any additional wiring. There is no need of inverters in this layout so that we can cut down the installation and maintenance cost of such inverters. This DC topology having much better response over power factor related issues. Thus we can save about 20%-50% of harvested energy. Enhancement of energy efficiency, effective utilization of harvested power and digitization of electrical wiring are the three main mottos of this concept. Here switch boards are known as **master control modules** and connection terminal boxes are called **junction nodes** or **slaves**. Now it is possible to

connect up to 64 slaves units simultaneously with a single master control module.

Master control module is an android device, consisting touch screen controlled display screen for UI (User interface) thus conventional mechanical switches are eliminated from the layout. Since all operations are controlled digitally, it is possible to make changes and bring expansion or reshuffling of wiring layout at any time by simply change the settings or upgrading the software. We can control the loads through smart phones also will give a greater degree of enhancement in controlling.



Dear Colleagues,

GECT Research Bulletin is a bimonthly news bulletin of GEC Thrissur, intended to publish research activities of Students and Teachers. Kindly send the details of your research activities (listed below) to the e-mail address [gectresearchbulletin@gectcr.ac.in](mailto:gectresearchbulletin@gectcr.ac.in) at the earliest.

- Publications of faculty/staff/students in International/ National Journals/Conference proceedings (Article title, Authors' names, Journal name, volume, issue, page number and abstract)
- Awards/achievements of faculty/staff/students in Research and Development activities
- Award of project funding/grants from external agencies
- Achievements of GECT Innovation centre
- Articles on latest research trends and contribution to book chapters by faculty/staff/students
- Faculty/staff/students who acquire Ph. D degree.

- **Editors**

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