



GEC RESEARCH BULLETIN

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Compiled by Institute Research Advisory Council (IRAC)



Principal's Message

It is only an accepted fact that the emerging system of professional education demands an increased importance to new explorations and related research activities, with the aim of enriching local, national and international communities. Hence, my whole hearted appreciation for the release of this latest issue of Research News Bulletin. I am sure this will certainly create some positive ripples and inspire the entire team of Faculty, Supervisors and students involved in the field of research. I would like to congratulate the research scholars who have been awarded PhD degree during the last six months and also their supervisors.

Of course, a commendable job has been done by the members of IRAC for the release of this bulletin especially the consistent efforts carried out by Dr. Vinod Raphael and Prof. Anish Babu which culminated in showcasing the potentials and contributions made by the researchers belonging to GEC Thrissur. Expecting more and more of this stature with excellence as the standard, and also wishing the very best for the future endeavours.

Dr. Ranjini Bhattathiripad T



GEC's Proud Moments



Congratulations to PhD Holders...

Research Advisory Council of GEC Thrissur has immense pleasure to congratulate our researchers Prof. Minimol Pieus T, Prof. Miji Cherian R and Prof. Sreelekha M G of Civil Engineering department, Prof. Mary C Kurian and Mr. Rajesh Menon B of Production Engineering department and Mr. Ajmal K T of Electrical Engineering department for acquiring Ph. D.



Dr. Minimol Pieus T



Dr. Miji Cherian R



Dr. Sreelekha M G.



Dr. Mary C Kurian



Dr. Rajesh Menon B



Dr. Ajmal K T

Details of PhD Awardees

AWARDEE	SUPERVISOR	TITLE OF WORK	UNIVERSITY & DATE OF AWARD
Minimol Pieus T, (Civil Engineering)	Dr. Soloman P A Professor, Dept. of Chemical Engg.	Studies on the treatment of municipal landfill leachate by advanced oxidation process and membrane bioreactor process.	University of Calicut, 09/02/2021
Miji Cherian R, (Civil Engineering)	Dr. N. Sajikumar & Dr. Sumam K.S Professors (Retired), Dept. of Civil Engg.	Fluid structure interaction in transient cavitating flow in pipes	University of Calicut, 16/04/2021.
Ajmal K T (Electrical Engineering)	Dr. Jayanand B Professor, Dept. of Electrical Engg.	Design, Development and Implementation of a Novel Four Switch Infinite Level Inverter	University of Calicut, 26/05/2021
Mary C Kurian (Production Engineering)	Dr. Shalij P R Professor, Dept. of Production Engg. & Research Dean, KTU	Investigations on Selection of Maintenance Strategy using Analytical Network Process	University of Calicut, 18/06/2021
Rajesh Menon B (Production Engineering)	Dr. Shalij P R Professor, Dept. of Production Engg. & Research Dean, KTU	Design and Implementation of Cost Integrated Value Stream Map in msme	University of Calicut, 18/06/2021
Sreelekha M G (Civil Engineering)	Dr. K. Krishnamurthy & Dr. M.V.L.R. Anjaneyulu, NIT Calicut	Analysis of Transport Network and Land use Influence on Travel in Urban Area	NIT Calicut, 12/04/2021

Publications

Civil Engineering

1. **Praseeja, A.V. & Sajikumar, N.** (2021). "LNAPL Migration in Vadoze Zone and Its Prevention Using Natural Fiber". *Journal of Natural Fibers*, 1-16. <https://doi.org/10.1080/15440478.2020.1848701>
2. **Miji Cherian, R., Sajikumar, N. & Sumam, K.S.** (2021). "Influence of fluid structure interaction on pressure fluctuations in transient flow". *Journal of Pipeline Systems - Engineering and Practice, ASCE*, 12(2), 530-535. [https://doi.org/10.1061/\(ASCE\)PS.1949-1204.0000530](https://doi.org/10.1061/(ASCE)PS.1949-1204.0000530).
3. **AshaFarsana, M., Sajikumar, N. & Subaida, E. A.** (2021). "Three-dimensional investigation of Engineered Injection and Extraction for enhanced groundwater remediation". *Journal of Hydrologic Engineering, ASCE (in press)* [https://doi.org/10.1061/\(ASCE\)HE.1943.5584.0002114](https://doi.org/10.1061/(ASCE)HE.1943.5584.0002114)
4. **Blessy, T., Sumam, K. S. & Sajikumar N.** (2021) "Patient Specific Modelling of Blood Flow in Coronary Artery". *Journal of Applied Fluid mechanics*, (accepted)

Production Engineering

1. **M. Pradeep and K.P. Satish**, (2021) , A campus start-up ecosystem for mechanical engineering students: Challenges, approaches, catalysts and solutions, Industry and Higher Education, Sage Journals, pp 1–9, DOI: <https://doi.org/10.1177/09504222211001785>
2. **M Pradeep and K P Satish** (2021), A methodology to analyze undergraduate engineering student's campus start-up activities and its scope of B2C companies, IOP Conf. Series: Materials Science and Engineering 1114 (2021) 012062 IOP Publishing doi:10.1088/1757-899X/1114/1/012062

Chemistry

1. **Ragi K1, Joby Thomas Kakkassery, Vinod P. Raphael , Reeja Johnson and Vidhya Thomas K** "In vitro antibacterial and in silico docking studies of two Schiff bases on Staphylococcus aureus and its target proteins", Future Journal of Pharmaceutical Sciences (2021) 7:78
2. **Vidhya Thomas K A, Joby Thomas Kakkassery, Vinod P. Raphael, K. Ragi and Reeja Johnson**, "Ixoracoccinea extract as an efficient eco-friendly corrosion inhibitor in acidic media: Experimental and theoretical approach", Current Chemistry Letters, 10 (2021) 139–150

Conference Publications

1. **Sherjah, P. Y. & Sajikumar, N.** (2021). "Inference On The Bio-Optical Status Of A Water Body From Its Spectrum Measured by Sentinel 2 MSI" *25th Hydro 2020, International Conference on Hydraulics, Water Resources, and Coastal Eng*, NIT Rourkela, (26-28)March 2021.
2. **AshaFarsana, M., Sajikumar, N., and Subaida, E.A.** (2021). "Effect of heterogeneity and anisotropy on enhanced spreading in porous media during Engineered Injection and Extraction", *25th Hydro 2020, International Conference on Hydraulics, Water Resources, and Coastal Eng*, NIT Rourkela, (26-28)March 2021.
3. **Nirmal, K.A. K. and Sajikumar, N.** (2021). "Landslide prediction in Western Ghats using TRIGRS model", *25th Hydro 2020, International Conference on Hydraulics, Water Resources, and Coastal Eng*, NIT Rourkela, (26-28)March 2021.
4. **Mijicherian, R., Sajikumar, N. & Sumam, K.S.** (2021). "Modal analysis for a water carrying piping system". *25th Hydro 2020, International Conference on Hydraulics, Water Resources, and Coastal Eng*, NIT Rourkela, (26-28)March 2021.
5. **Dimna Denny C, Dr. Ramesh Kumar P** "Smooth Integral Sliding Mode Controlled Buck-boost Converter for the speed control of PMSM Fed Electric Vehicle". International conference in recent trends in machine learning smart city IoT and application, Hyderabad, India. March 23, 2021
6. **SaghilAbhayadev, Dr. Ramesh Kumar P**, Effect of DFIG Wind Turbines on LFC in a Sliding Mode Controlled Power System "IEEE Sponsored 6th International Conference for Convergence in Technology (I2CT) 2021". Pune, Maharashtra, India, April 02—04 - 2021.
7. **Prasanth K Prasad, Dr. Ramesh Kumar P** "Super Twisting Algorithm Based Hybrid Energy Storage System for Electric Vehicle": IEEE 2nd International Conference of Emerging Technologies, Belgaum, India, May 23- 25, 2021.
8. **Dimna Denny C and Dr. Ramesh Kumar P** "Study on Drive Cycle Tracking ability of Different Control Algorithms for an Electric Vehicle", IEEE International Conference on Communication, Control and Information Sciences Idukki. Kerala, June 16-18, 2021
9. **SaghilAbhayadev, Dr. Ramesh Kumar P**, "Smooth Integral Sliding Mode Control for the Load Frequency Control in a Two Area Interconnected Power Systems Area", 2nd International Conference on IoT Based Control Networks and Intelligent Systems ICICNIS 2021, Kerala, India., June 28-29, 2021.
10. **Bhagyasree PV, Ajay James**, "A Method for Recognition of Handwritten Cursive English Characters using CNN" Conference name and date: Second International Conference on Artificial Intelligence and Society (ICAIS 2021), March 26-28, 2021, organized by the Department of Computer Science, University of Kerala, Trivandrum, India.



11. Mubashira N, Ajay James "Attention based Neural Network for Video Content Description" Conference name and date: Second International Conference on Artificial Intelligence and Society (ICAIS 2021), March 26-28, 2021, organized by the Department of Computer Science, University of Kerala, Trivandrum, India.

12. Mubashira N, Ajay James, Soumya Varma and Bhagyasree P V "Video Captioning using Transformer Network" Conference name and date: International Conference on Computational Intelligence in Engineering Systems (ICCIES-2021), organized by SKN Sinhgad College of Engineering, Pandharpur, Maharashtra, June 25-26, 2021 (Scopus)

13. Samatha P Salim, Ajay James, Bhagyasree P V and Bisna N D "Malayalam Handwritten Character Recognition Using Residual Network Enhanced by Multi-Scaled Features", Conference name and date: International Conference on Computational Intelligence in Engineering Systems (ICCIES-2021), organized by SKN Sinhgad College of Engineering, Pandharpur, Maharashtra, June 25-26, 2021 (Scopus)

It's Our Proud Moment!

Dr. Viswanath C Narayanan

Co-Editor : 'Annals of Operations Research'
-A journal publishing by Springer.



IRAC congratulate **Dr. Viswanath C Narayanan**, Associate Professor, Department of Mathematics, GECThrissur for being selected as a co- editor of a special issue of "Annals of Operations Research"- A reputed journal publishing by Springer.



Dr. Shalij P R

Research Dean

APJ Abdul Kalam Kerala Technological University

IRAC congratulates and wishes all the best to **Dr. Shalij P R** as he took up new role as **Research Dean** of APJ Abdul Kalam Kerala Technological University.



Dr. K Meenakshy

GECT's Research Dean



IRAC congratulates and offer all support to **Dr. Meenakshy K**, Dept. of Electrical Engineering for her new responsibility as Research Dean. IRAC express immense gratitude to **Dr. N Sajikumar** (Retired Professor of Civil Engineering) for his valuable service as Research Dean during 2019-2021

News

ICETEST 2020 papers published in Materials Science and Engineering

The papers of 6th Biennial International Conference on Emerging Trends in Engineering Science and Technology (ICETEST 2020) 17th-19th December 2020, Kerala, India (ICETEST 2020) have been published in IOP Conference Series: Materials Science and Engineering. The journal volume and papers can be

accessed using the link: <https://iopscience.iop.org/issue/1757-899X/1114/1>. IRAC appreciate **Dr. Ramachandran K K**, Professor, Dept. of Mechanical Engineering for his great effort to publish the accepted articles in the journal "Materials Science and Engineering".

Congratulations to the Researchers who availed Seed money Project (TEQIP)

Six seed money projects have been sanctioned by the Research Guidance Committee of TEQIP. The details are given below. (Project fund: 2 lakhs, Period 1.5 years).

Research Guidance Committee of TEQIP consists of **Dr. Manju M S**, Convener & CERD coordinator (Dept.

of Chemical Engg.), **Dr. V Kumar** (Scientist G, C-MET, Thrissur), **Dr. K. Mohankumar** (Professor Retired, CUSAT), Research Dean, GEC Thrissur, PG Dean GEC Thrissur, **Dr. Vinod P Raphael**, Member (Dept. of Chemistry).

SI No.	Name of the Faculty Member	Department	Name of the Project	Estimate Amount (Rs)
1	Dr.Mercy Anna Philip	ChE	Investigation on ultrasound –assisted removal of heavy metals from water using oxide/Zeolite nanocomposites.	190000
2	Dr.Ranjana R.	ChE	Preparation and characterisation of carbon supported catalyst from Industrial by products for conducting Oxidation/Reduction Reactions	200000
3	Mr.Tennison K.Jose	ME	The effect of varying fuel injection pressure on the performance and emission in a diesel engine fuelled with coconut Testa biodiesel	200000
4	Renjith V.B.	ME	Investigation on Dissimilar friction stir welding of Aluminium Alloys AA 7050-T7651 and AA5083-H111	200000
5	Mr.Jikhil Joseph.	CE	Experimental Investigations on prestressed cold formed steel beams	200000
6	Dr.Sinith M.S.	ECE	South Indian Classical music synthesis using machine learning techniques	200000

Swavalamban Chair for MSME

The soft launch of the **Swavalamban Chair for MSME Solutions** under the project SAHAS was held on **July 1st, 2021**. **Mr. VSV Rao (Deputy Managing Director, SIDBI)**.

Dr. Byjubai T P, Director of Technical Education addressed the programme

Small Industries Development Bank of India (SIDBI) is one of the 4 banks under RBI. The MoU between our college and SIDBI was signed on 18th June 2021.

The objective of the scheme is to promote entrepreneurship in our college and also to support other colleges. Our college will receive a total funding of **Rs 153 lakhs** for the next three years. Initially for the year 2021-22, we will receive an amount of Rs 44 lakhs. IRAC congrats **Dr. Ajay James** and team for their great effort to make the venture a great success.

Expert Talk

Name	Department	Topic	Institution	Date
Dr. N Sajikumar	Civil Engineering	Introduction to GIS: Online mode	Government Polytechnic College Palakkad	13.1.2021

Best Woman Researcher Award goes to Bhagyasree P V

Bhagyasree PV (M Tech 2017-19 batch) was awarded the **Best Woman Researcher Award** for the paper "*Malayalam Handwritten Character Recognition Using Residual Network Enhanced by Multi-Scaled Features*" presented in International Conference on Computational Intelligence in Engineering Systems (ICCIES-2021), organized by SKN Sinhgad College of Engineering, Pandharpur, Maharashtra, June 25-26, 2021 (Scopus).

The work was done under the guidance of **Dr. Ajay James**. **Samatha P Salim** and **Bisna N D** were the co-authors of the paper. IRAC congrats Bhagyasree and her team members.



Congrats to our young Scientists!! (CERD project funding)



Arjun K



Haseebrahman V K



Ajay Krishnan P V



SinadinZidan K.

Ajay Krishnan P V, Arjun K, HaseebRahman V K, and SinadinZidan K, under the guidance of **Dr. Shreelekshmi R**, has been selected to receive a grant amount of Rs 27000/- from CERD for the project titled "*Agrisafe*", which aims at developing an embedded system using machine learning and image processing techniques, to prevent the intruding animals into an agricultural area using ultrasonic sound. IRAC congrats the research team.



Guide : Dr. Shreelekshmi R.

TBI Achievements

India Book of Records and Asia Book of Records

India Book of Records has been the undisputed curator and the custodian of Indian Records. Estro Tech Robotics and Innovations incubated at GECT TBI has won India Book of Records 2021 for India's first Innovative UV Sterilizing Robot.

Asia Book of Records is a platform where the record holders of all major National Book of Records including India Book of Records, Vietnam Book of Records, Indo-China Book of Records, Laos Book of Records and Nepal Book of Records meet to compare, compete and claim the title of Asia Book of Records Holder. Estro Tech Robotics and Innovations has won Asia Book of Records 2021 for Innovative UV Sterilizing Robot.

Desintox Technologies Pvt Ltd

Desintox Technologies Pvt Ltd, a start-up incubated at GEC TBI and founded by GEC Alumni, filed a patent for "ASSISTIVE POSTURE SUPPORT MATTRESS"

- Patent Application No. 202141022935
- Date of filing: 22nd May 2021
- Team for the invention : Sooraj C (12-16 ME), Don Paul (12-16 PE), Sarath MS (13-17PE) , Sreeram CH (13-17 EEE)

Desintox Technologies also received a grant of Rs6.5 lakhs from Department of Science and Technology (DST), Government of India for developing advanced patient transfer device which can transfer patients between various surfaces. The startup has brought forward assistive products like advanced wheelchairs and patient transfer devices also.



ASAP Internship Portal - Team Quarksium

Additional Skill Acquisition Programme (ASAP) Kerala is a Government Company that focuses on imparting job-readiness skills to students to enhance their employability levels. Team Quarksium from our



college developed an internship assistance web platform for ASAP Kerala where employers can register themselves and post internships, and students from different Universities in Kerala can apply for these internships. The team consists of **Aadil Abdul Latheef KP, Aparna VK, Arathy Uday, Fathima Sherin N, Krishna K and Sinadin Zidan K** of S8, Computer Science Engineering, under the guidance of **Dr. Ajay James**.

Hearty Congratulations to the winners & Dr. Ajay James

IRAC congratulates all students who participated and secured awards in various prestigious events. IRAC appreciates Dr. Ajay James, Professor of CSE department for his sincere mentoring of the students to win in various events

Name of the Event	Team	Winning award for developing	Descriptions
Hack The Mountain 2.0 Sigma Hacks 3	Goutham Byju, Maria Viji George, Abil Savio, Rishika Raveendran, Niranjana Neelakantan, Gokul Dinesh, Angitha Shaji, Anikait Sunil Nair, Navneeth Variar (S4 CSE)	Classroom 2.0, an interactive virtual classroom desktop app	Jammu and Kashmir "SUDAN'S TECH", 400+ teams participated. our college team secured 8 th place, won the Best Education Hack
HACK GIRL SUMMER 2.0	Aiswarya Pradeep, Rosemary Benny, Rishika Raveendran, Linette Joseph, Maria Viji George and Neha Susan Manoj (S4 CSE)	Free to hack on projects that focus on gender equity and inclusion	Won second prize, MLH from June 4 th 2021 - June 6 th 2021
HACK THE HACKATHON - 40 Hours (National Women Hackathon)	Anjana K T, Annie George, Devi Krishna M K, Maria Viji George, Linette Joseph, Rosemary Benny (S4 CSE)	The Orchard (mobile application)- trade triangle between small scale businesses, consumers & delivery services	Won Third prize, 20 th to 22 nd May, Toc H Institute of Science and Technology. .
Darshana Ignite Awards 2021	Kevin Jacob Senoj (S2 CSE).	VoA (Voice Amplifier) is a light device and fits comfortably onto almost all kinds of masks or face shields.	Alumni organization of NSS College of engineering Palakkad & Darsana Charitable society
Darshana Ignite Awards 2021	Aswin Kumar (S8 ME), Ashwin Binoy (S8 ME), Pranav BK (S8 PE), Ajith Vijay (S8 ME), Aagesh Babu (S8 ME)	Automatic Robot having artificial intelligence assists in thinking, taking decisions and action.	Alumni organization of NSS College of engineering Palakkad & Darsana Charitable society
WiT ACE Hackathon 2021	Maria Viji George, Mariya Thomas, Neha Susan Manoj, Gokul P Dinesh, Abil Savio (S4 CSE)	EcoTopia - A Sustainable Village (conserving water and promoting rainwater harvesting)	Partnership with IBM, is India's Largest women-focused Hackathon. Our team secured special mention in the University section in the finals held on 28 th June 2021

Congratulations



WiT ACE Hackathon 2021	Aadhya K Raj, Anjana K T, Amita Rajeev, Abhinav Thomas and IjasAhamed J (S4 CSE)	Earth Wise created GARBIN - The smart garbage bin. They have a smart bin for the deposition of plastic bottles/cans along with MyPlasticPays app.	partnership with IBM, is India's Largest women-focused Hackathon. Our team secured special mention in the University section in the finals held on 28 th June 2021
Teranis 21	Anjana KT, Linette Joseph, Praveen K Nair Vaishnav NT of S4 CSE and Fida Fatima (S4 ECE)	Cyber bullying monitoring app	Won First prize. Teranis is the inter-collegiate tech fest of LBS College of EngineeringKasargod.
Teranis 21	Abhinav Thomas, IjasAhammed J, Anirudh A K and Jithin T (S4 CSE)	MeDiCa – Medical Digital Card. It is a virtual card that abolishes the present stigma in the medical industry for data basing the records.	Won Second position. Teranis is the inter-collegiate tech fest of LBS College of EngineeringKasargod,
ABHYUDHAYA 2021	Rosemary Benny, MuhammedHashir PM, Anjana Thomas (S4 CSE) Abdul Adhil PK (S4 PE)	CARE24, an end to end service-based mobile application. This can make your home a hospital and a shopping complex at the same time	Secured second prize. MBITS in connection with National Level Arts and Tech Fest Rhythm 2k21 on 1 st June, 2021.
WebBout'21	Anjana Thomas and Aiswaryapradeep(S4 CSE)	Creating a tourism website for IDUKKI district.	WebBout'21 is a 24 hour online web designing competition organized by CSI student chapter, Mar Baselios College of Engineering and Technology, Tvm on 11-06-21 to 12-06-21.
WebBout'21	NavneethVariar and Maria Viji George of S4 CSE won the third prize.	creating a tourism website	Won the third prize.
TORQUE	Rosemary Benny, Neha Susan Manoj, Linette Joseph (S4 CSE), and Easwari M (S4 EEE)	Mock business pitch, product design, and prototyping along with crisis management	Winners , M A College of Engineering, Kothamangalam from 21 st May to 30 th May 2021
TORQUE	FATHIMA SHIRIN (S6 EEE)	A complete menstrual store that brings a plethora of menstrual products all under one roof along with expert consultation	Winners , M A College of Engineering, Kothamangalam from 21 st May to 30 th May 2021
IBM Quantum Challenge 2021 Achievement - Advanced	Navaneeth D, S6, CSE	Earned IBM Quantum Challenge 2021 Achievement - Advanced badge for the exceptional performance displayed in the competition. (97 th position from participants all over the world)	Commemorating the 40-year anniversary of the Physics of Computation conference, and 5-year anniversary of IBM putting the first quantum computer on the cloud, IBM had conducted the IBM Quantum Challenge 2021.

Sephora	Linette Joseph of S4 CSE	Algorithms, personal branding, group discussions, mock interview, writing and comprehension skills	Overall Second place, IEEE CS GECB in collaboration with IEEE CS Kerala Chapter and wings of women
MARSION	AMRITHA SAMUEL K of S2 Architecture	A concept art competition on the theme Mars colonization & DOODS on the theme mental trauma	2 nd place, Inter college competition CUSAT.IEEE SB GECT and IEEE WIE KERALA
Under 25 Space warrior Fellowship	Linette Joseph of S4 CSE	space warrior fellowship amongst 18000 applicants	India's largest student culture brand that organises a multitude of events specifically to uplift and up bring students.
Cohesion ARG 2021	Emil Titus, S6 CSE	online cybersex curity competition	5 th Place (National Level) IEEE Student Branch & IEEE Computer Society Student Branch Chapter of The NorthCap University
ISTE State Student Convention	Emil Titus, S6 CSE	Coding Competition – First PlaceGoogler – First PlaceGeneral Quiz – Second Place He also received the Best Delegate Award for 2021.	19th Annual ISTE State Student Convention, Technical and Management Fest of the ISTE Kerala Section, GEC, Kozhikode
vGHC'21 Scholar	Rosemary Benny of S4 CSE	Google AnitaB.org GHC Scholarship.	Virtual Grace Hopper Celebration 2021.
TinkerHub Foundation	Neha Susan Manoj of S4 CSE	Community Manager Intern at TinkerHub Foundation	TinkerHub Foundation is a non-profit community of tinkerers, makers
DASH Program (Solvengers Track)	Abhinav Thomas (S4 CSE), IjasAhammed J (S4 CSE), Dheeraj K (S4 CSE) and Adithyan S (S6 ME)	Problem solving ability	It's an intensive 2-month virtual learning program for students and aspiring young entrepreneurs



Dear Colleagues,

GECT Research Bulletin is the official research news bulletin of GEC Thrissur, intended to publish research activities of Students and Teachers. Kindly send the details of your research activities to the e-mail address gectresearchbulletin@gectcr.ac.in at the earliest.

-Editors

Editors

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