



# GECT RESEARCH BULLETIN

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Compiled by Institute Research Advisory Council (IRAC)



## Principal's Message

It is indeed a matter of great pride and source of immense pleasure to note that our institution is moving forward with its success stories, especially in the field of research. Within the span of July 2021 to December 2021, the full credit of getting elevated as PhD holders goes to 13 research scholars, out of which eight are our faculty members. Let me congratulate each one of them and their supervisor for this commendable achievement and also for striving hard to reach and maintain high academic standards through their research activities. They will certainly inspire and foster talents among the researchers both of the present and future generations. This will surely play a vital role in making them capable of standing out from the rest, in the fiercely competitive field of research, both on the personal and institutional levels. Yet another remarkable achievement we could attain is in the field of NIRF ranking, where, due to our high performance, we could gain the elevated position of 156 from the earlier status of 164. In this regard, my sincere thanks and appreciation goes to the relentless effort taken by Dr. Joseph K. D. and his entire team, and also all others who have contributed towards this great accomplishment. Let me also acknowledge and applaud the commendable work carried out by Dr. Ajay James and his team in ARIIA ranking in achieving the Band- Performer under the category "Colleges /Institutes (Govt./Govt. Aided) (Technical)".

Finally, my special thanks to Dr. Vinod Raphael & team members for publishing this edition of the Research Bulletin, with all the necessary updates happening in the field of research. Wishing all success in the future endeavours as well.

Miles to go!!!

Dr Renjini Bhattathiripad



## GEC's Proud Moments

Congratulations to PhD Holders...



Research Advisory Council of GEC Thiruvananthapuram has immense pleasure to congratulate our faculty members Prof. Premanand B, Prof. Job Chunkath & Prof. Jayadevan R of department of ECE, Prof. Rajesh K & Prof. Manmohan C M of department of ME, Prof. Mini V of department of EE, Prof. Sivan P P & Prof. Sosamony K J of department of CE, Prof. Shejin K V of department of Phy. Edn. and Ms. Nirmal S & Mr. Sivarajan K.N of department of EE, Ms. Praseeja A V of department of CE and Mr. Anil Kumar K R of department of EE for acquiring Ph. D.



Dr Anil Kumar K R



Dr Mini V



Dr Praseeja A V



Dr Jayadevan R



Dr Job Chunkath



Dr Manmohan C M



Dr Premanand B



Dr Shejin K V



Dr Rajesh K



Dr Sosamony K J



Dr Sivan P P



Dr Sivarajan K N



Dr Nirmal S



## Details of PhD Awardees

Sl. No	Name of Ph. D Awardee	Dept.	Name of Supervisor	Title of the Work	Date of Award & University
1	Prof. Rajesh K	EE	Dr. C. Nagamani, NIT, Tiruchirappalli	Certain investigations for improved performance of a permanent magnet brushless dc motor drive	21/06/2021, NIT, Tiruchirappalli
2	Mr. Anil Kumar K.R.	EE	Dr. Meenakshy K	An Automated Algorithm To Extract Features From Retinal Fundus Images To Detect Diabetic Retinopathy And Assess Its Severity Using Deep Learning.	30/07/2021, University of Calicut
3	Prof. Shejin K V	Phy. Edn.	Dr. T. Vivekanandhan, University of Calicut	Effect of Circuit And Yogic Training Programmes On Selected Physical And Physiological Components Among Obese Children	29/07/2021, University of Calicut
4	Prof. Sosamony K J	ChE	Dr. Solomon P A	Treatment of textile effluent using moving bed biofilm reactor coupled with advanced oxidation processes.	07-09-2021, University of Calicut
5	Prof. Mini V	EE	Dr. Sunil Kumar T. K, NIT Calicut	Optimal Allocation and Coordinated Design of FACTS controllers for Reactive Power Management	14/09/2021, NIT Calicut
6	Prof. Premanand B	ECE	Dr. Sheeba V S	Compressed Encoding of Signals and Activity Detection based on Level-Crossing Sampling	University of Calicut, 10/09/2021
7	Prof. Manmohan C M	ME	Dr. Shalij P R.	Studies on Development of Lean and Sustainability Integrated Quality Management System and its test implementation in Indian SMEs.	University of Calicut 28/9/2021
8	Ms. Praseeja A V	CE	Dr. N. Sajikumar	Ground water Contamination due to LNAPL Hydrocarbons and its Control using Natural Fibres	University of Calicut 7/10/2021
9	Mr. Jayadevan R.	ECE	Dr. Sheeba V S	A Generic Image Retrieval Technique for Capturing Multiple Semantics.	University of Calicut 09/12/2021
10	Prof. Job Chunkath	ECE	Dr. Sheeba V.S	Performance Enhancement in Filter Bank based Multicarrier Systems	University of Calicut 23/12/2021
11	Ms. Nirmal S.	EE	Dr. Jasmin.E.A	Control and Grid Synchronization Techniques of a Microgrid For Improved Power Sharing and Power Quality	23/12/2021 University of Calicut
12	Mr. Sivarajan K.N	EE	Dr. Jasmin.E.A	Power Quality Improvement of Solar PV Integrated Distribution Systems using a novel UPQC with differential inverter control	23/12/2021 University of Calicut
13	Prof. Sivan P P	CE	Dr. C. Gajendran & Dr. A. Praveen	Decision Support System for the Implementation of Earthquake Resistant Load Bearing Masonry Construction	18/10/21, Karunya Institute of Technology & Science





We have **156<sup>th</sup>** position  
in the National Ranking!



The **National Institutional Ranking Framework (NIRF)** is a methodology adopted by the Ministry of Education, Government of India, to rank institutions of higher education in India. The Framework uses several parameters for ranking purposes like resources, research, and stakeholder perception. The importance of a national ranking system is that it helps students choose the best institute. A national ranking ensures that all higher educational institutes strive hard to improve their rankings. We are really proud to say that we have improved our Rank from 164 (2020) to 156 (2021) in the Engineering field. IRAC congratulates the entire faculty, Staff and Students for this great achievement. IRAC appreciates the NIRF coordinator of our institute **Dr. Joseph K D** and all the committee members for their efforts to collect the data and to showcase our achievements to the society. IRAC wishes all the best to the new NIRF committee.

**Atal Ranking of Institutions on Innovation Achievements (ARIIA)** is an initiative of the Ministry of Education (MoE), Govt. of India to systematically rank all major higher education institutions and universities in India on indicators related to "Innovation and Entrepreneurship Development" amongst students and faculties. ARIIA ranking will certainly inspire Indian institutions to reorient their mindset and build ecosystems to encourage high-quality research, innovation and entrepreneurship. More than quantity, ARIIA will focus on the quality of innovations and will try to measure the real impact created by these innovations nationally and internationally. Moreover, ARIIA will set the tone and direction for institutions for future development for making them globally competitive and in the forefront of innovation. Our college is recognised as the band "PERFORMER" under the category "Colleges/Institutes (Technical) in Atal Ranking of Institutions on Innovation Achievement (ARIIA) 2021. IRAC congratulates all the Students, Faculty and Staff members of our institution for this achievement. IRAC appreciates **Dr. Ajay James** for his efforts to bring this prestigious position to our institute.







## Congratulations to the Contributors....

### *Journal Publications*

#### Mechanical Engineering

**MD Bindu, PS Tide, AB Bhasi, KK Ramachandran**, Modeling and parametric optimization of friction stir welding of aluminium alloy AA7068-T6 using response surface methodology and desirability function analysis, Bulletin of the Polish Academy of Sciences: Technical Sciences, Vol. 69 (4), 2021, DOI: 10.24425/bpasts.2021.137936 (SCI Journal with impact factor: 1.662)

**Jayadevan P C, Pradeep M Kamath** (2021), Experimental Investigation of liquid flow through microtubes of manufactured roughness level, International Journal of Fluid Mechanics Research, Vol 48 issue 4 Page 17-26

#### Electronics & Communication Engineering

**Syamly, S. B. Chunkath, J.** “Radar Cross Section Reduction of Microstrip Patch Antenna using Metamaterial Techniques”. Journal of Electrical and Electronics Engineering 14, 59–64 (2021).

**J. Chunkath, V. S. Sheeba, P. P. Paul**, “Fast Convolution Based Complexity Reduction in Universal Filtered Multi-Carrier Systems,” IETE Journal of Research pp. 1–8, Jan. 2022, doi: 10.1080/03772063.2021.2016505.

#### Chemical Engineering

**Sosamony K.J., P.A.Soloman**, Treatment of Textile Effluent using Solar Photo Fenton Process with bio-synthesized nZVI, International Journal of Environmental Engineering, Inderscience, Vol. 11, No. 2, 2021

#### Production Engineering

**Pradeep.M, Satish.K.P** (2021), Entrepreneurial Inquisitiveness of Under Graduate Mechanical Engineering Students. Journal of Engineering Education Transformations, pp 66-79, Volume 35, No. 1, July 2021, ISSN 2349-2473, eISSN 2394-1707.

### *Conference Publications*

**Jahana C., M S Sinith, P.P. Lalu** “ Direction of Arrival Estimation using Microphone array” Fourth International Conference on Microelectronics, Signals and Systems, Nov 2021

**Divya B. Mathew** “Comparative study of codal provisions of monosymmetric I beam subjected to point loads in top flange” in Yukthi 2021- The International Conference on Emerging Trends in Engineering. The proceedings of the same are published in Elsevier-SSRN eJournal



# Journal Articles

*Congratulations to the Contributors....*

**F. Anoob and V. Meera**, 2021 Optimization of operational parameters for the treatment of roof-harvested rainwater with biologically synthesised nanosilver coated on sand, Water Supply doi: 10.2166/ws.2021.20

**Hasna Jahan K., Stenil A. Jacob, Fabi Binad M. K., Arjun Sugathan, P. A. Soloman**, Simulation and optimization of Mono Ethylene Glycol production process , Yukthi 2021- The International Conference on Emerging Trends in Engineering, Sep, 24-26, 2021, GEC Kozhikode

**Sulaikha S., P.A.Soloman**, Dynamic Simulation of Synthesis Section of Ammonia Plant, Yukthi 2021- The International Conference on Emerging Trends in Engineering, Sep, 24-26, 2021, GEC Kozhikode

**Mariya Binoy, P.A.Soloman**, Heat Integration of Synthesis Gas Production Part of Haber-Bosch Process of Ammonia Manufacture, Yukthi 2021- The International Conference on Emerging Trends in Engineering, Sep, 24-26, 2021, GEC Kozhikode

**Vishnu Prasad S R and Sreejith P S, Renjith V B**, A finite Element Analysis on the Upshot of the side Tapper Geometry of soft robotic Gripper, 4th International congress on Advances in Mechanical Sciences 26th Novemeber to 27th November 2021 Vardhaman college of engineering, Hyderabad

**Akash Raj, Priyanka C P, Ramachandran K K, Sudeep U**, Characterization of Ti Biomedical Implant Surfaces Modified by Physical Vapor Deposition (PVD) coating, International Conference on Aerospace and Mechanical Engineering ICAME'21, 16 – 18 December 2021, Department of Mechanical Engineering, TKM College of Engineering Kollam, Kerala (Sponsored by TEQIP III and ISRO)

**Subramanian K, Ramachandran K K, Rajeev V R, Renjith V B**, Effect of Tool Axis Offset on the Characteristics of Friction Stir Welded Dissimilar Aluminium Alloys AA5083 and AA7050, International Conference on Aerospace and Mechanical Engineering ICAME'21, 16 – 18 December 2021, Department of Mechanical Engineering, TKM College of Engineering Kollam, Kerala (Sponsored by TEQIP III and ISRO)

**Syamili Sivadas, Vinod P Raphael, K S Shaju, T K Bindu** (2021) “Effect of Schizophrenia Drugs on Dopamine Receptors to Trigger Symptoms of Parkinsonism-A Computational Evaluation. International Conference on Emerging Frontiers in Chemical Sciences (EFCS-2021), Department of Chemistry, Farook College , Kozhikode, 29-31 October 2021

**Sreelakshmi PS, Vinod P Raphael, K S Shaju, T K Bindu** (2021) “Molecular Docking Studies of Aromatic Polynuclear Schiff Sase on Selected Receptors of Alzheimer’s Disease” International Conference on Emerging Frontiers in Chemical Sciences (EFCS-2021), Department of Chemistry, Farook College , Kozhikode, 29-31 October 2021

**Bhagyasree PV, Ajay James, Bisna N D, Vipin Kumar K S** Handwritten Cursive English Character Recognition using DAG-CNN, 6th International Conference on Microelectronics, Electromagnetics and Telecommunications (ICMEET 2021), BEC Bhubaneswar, August 27-28, 2021(Springer)



## All the Best to the newly joined PhD Scholars (2021 Admission)

No.	Name of the Scholar	Scholarship	Dept.	Supervisor
1	Asha Rajan	Full time scholar	ARCH	Dr. Ranjini Bhattathiripad T
2	Deepak V	Full time scholar	ARCH	Dr. Ranjini Bhattathiripad T
3	Merin Maliyamave L	Part time scholar	ARCH	Dr. Ranjini Bhattathiripad T
4	Dibini Amal	Part time scholar	ARCH	Dr. Ranjini Bhattathiripad T
5	Sruthy George	External part-time	ARCH	Dr. Ranjini Bhattathiripad T
6	Arya S	AICTE Doctoral Fellowship	CE	Dr. Seena P
7	Lemya Musthafa	Full time scholar	CE	Dr. Seena P
8	Litha T T	Full time scholar	CHE	Dr. Praseetha P Nair
9	Sreelakshmi P R	AICTE Doctoral Fellowship	CSE	Dr. Swaraj K P
10	Ali Akbar N	Part time scholar	CSE	Dr. Swaraj K P
11	Rahamathulla K	Part time scholar	CSE	Dr. Swaraj K P
12	Anju U V	AICTE Doctoral Fellowship	CSE	Dr. Swaraj K P
13	Vishnu Prabha N Kaimal	Part time scholar	ECE	Dr. Jayan A R
14	Rajiv T R	Part time scholar	ECE	Dr. Jayan A R
15	Latha K N	Part time scholar	ECE	Dr. Shajee Mohan B S
16	Anu Mattatholi	Full time scholar	ECE	Dr. Sinith M S
17	Chithra K R	Full time scholar	ECE	Dr. Sinith M S
18	Jerin James	AICTE Doctoral Fellowship	EE	Dr. Jasmin E A
19	Vipin Krishna R	Part time scholar	EE	Dr. Suresh K Damodaran
20	Remya Mol N	QIP	EE	Dr. Bindumol E K
21	Sreethu K	UGC-JRF	MATHS	Dr. Seema Varghese
22	Binju Varghese P	Full time scholar	ME	Dr. Bobby K George
23	Suraj R	Part time scholar	ME	Dr. Sudheesh RS
24	Nikhil Asok N	Part time scholar	ME	Dr. Sudheesh RS
25	Jithesh S R	Part time scholar	ME	Dr. Manesh K K
26	Sangeeth S Nair	Full time scholar	ME	Dr. Haris Naduthodi
27	Kailash Karunakaran	Part time scholar	ME	Dr. Mubarak Ak
28	Leo A J	QIP	ME	Dr. Rekha L
29	Nikhil Jacob	Full time scholar	ME	Dr. Lijo V





# Best Paper Awards

*IRAC Congratulates the students and their Supervisors for this achievement.*

*Congratulations!*

**Rahul Subrahmanian, Sebastian Varghese and Binoy B B**

“Implementation of a High Step - Down Single Switch AC-DC Converter using Integrated Buck-Buck-Boost Topology” Best Presentation under Power Electronics in the ICCCE-’21 organized by Department of Electrical and Electronics Engineering, Christ College of Engineering, Irinjalakuda under the aegis of Christ Engineering Congress (CEC 2021) held from 13th to 15th July 2021.

**Ashique Ali M S, Nisha G**

“Reducing Voltage Fluctuations and Distribution Power losses in DC Microgrids using Electric Springs” Best Presentation under Power Electronics in the ICCCE-’21 organized by Department of Electrical and Electronics Engineering, Christ College of Engineering, Irinjalakuda under the aegis of Christ Engineering Congress (CEC 2021) held from 13th to 15th July 2021.



**Anju R and Meera V** Synthesis and Characterization of Aluminium Fumarate Metal-Organic Frameworks impregnated on Polyurethane Foam, International conference on Civil Engineering, Architecture and Sustainable infrastructure, ICCEASI 2021, Babu Banarasi Das university, Lucknow in association with Institute for Engineering Research and Publication (IFERP), 23-24 Sep 2021 (BEST RESEARCH PAPER PRESENTATION AWARD)



**Jyothi A. Kumar and Meera V** Environmental impacts of solid waste management systems for Thrissur corporation using LCA, Innovations in Civil Engineering, ICE2021, Marian college of Engineering, Trivandrum, 22-23 July 2021 (Best paper award in Environmental Engineering stream)



## Best Project Award



Ms. Lakshmi S, Ms. Manal Jaleel Poovathingal, Ms. Nandana V N and Ms. Sruthi M S of S8 EEE, GEC Thrissur for winning the **First Prize in the Final Year Project Awards 2021 under the Hardware Stream powered by Genskill partnering with IEEE LINK and Strategic Initiatives academic engagement, IEEE Kerala section** for their project titled 'Dura-Quad' under the guidance of **Dr. Rajesh K**, Assistant Professor, Department of EEE, GEC Thrissur, **Mr. Mohamed Samshad and Mr. Sudeesh V S**, Research Assistants, ICFOSS, Thiruvananthapuram. Dura-Quad is a drone system that acts as an aid for automatically detecting stranded people during floods. Human detection is done using the latest YOLOv5 object detection algorithm. The location of the stranded people are notified by mail to rescue centers enabling faster and efficient evacuation process and thereby reducing fatalities during disasters. IRAC congratulate the students and the faculty for this great achievement.

## SHARE YOUR EXPERTISE!!

During July-Dec 2021, **Dr. Ramachandran** had delivered five talks in National/International Conferences and Workshops as Keynote Speaker or Invited Speaker. He also took effort to review nine Research articles submitted to various SCI Indexed Journals during this period. IRAC congratulates **Dr. Ramachandran K K** for his great contributions to the Research Community. Details are given below.

Sl. No.	Details of the Event	Title of the Speech
1	Faculty Development Program (FDP) on Non-conventional Energy Sources: Technologies and Trends; 26-31 <sup>st</sup> July 2021; organized by the Department of Chemical Engineering, Government Engineering College, Kozhikode	Solar Energy & Solar Photovoltaics
2	Workshop on Scientific Writing and Publishing, 11 <sup>th</sup> August 2021, Department of Sciences, Kanya Maha Vidyalaya, Jalandhar, Panjab	Writing Scientific Research Papers – A Systematic Approach
3	International Conference on Materials Research in Engineering KMRSE' 21, Kumaraguru College of Technology, Tamil Nadu	Friction Stir Welding of Dissimilar Alloys
4	Workshop on Solar Energy (World Energy Conservation Day), 14-12-2021, Department of Mechanical Engineering, Chennai Institute of Technology, Tamil Nadu, India	Design of Solar photovoltaic Power Systems
5	MESA'21 – Mechanical Engineering Association Inauguration, 15 <sup>th</sup> December 2021, Nirmala institute of Technology, Thrissur, Kerala	Mechanical Engineering – Future and Challenges





Government Engineering College became one among the top 9 teams in India at the global level hackathon organized by IBM call for code. They approved the mobile application named “Ecotopia-The sustainable village” developed by the second-year computer science students, **Neha, Soosan Manoj, Mariya Thomas, Abhil Savio, Gokul Dhinesh, Mariya**



**Viji George** under the guidance of **Prof. Ajay James**. The main aims of the application is to save water, reduce wastage of water, and promote rainwater harvesting. It is the only student team from Kerala who qualified for the final round from a total of over a thousand teams.

## India Plastic Challenge Hackathon



The “India Plastic Challenge – Hackathon 2021” is a unique competition calling upon start-ups /entrepreneurs and students of Higher Education Institutions (HEIs) to develop innovative solutions to mitigate plastic pollution and development alternatives to single use plastics. The team “MyPlasticPays” consisting of **Aadhya K Raj, Ijas Ahammed J, Anjana K T** and **Amita Rajeev** under the mentorship of **Prof. Ajay James** competed under the track digital solution for Plastic waste. It was a four-month long hackathon which offered various workshops and coaching on developing business cases. The final pitching for the top 20 teams were held in October out of which top our team listed in top 3. The team has already incubated under the Swavalamban Incubation program at TBI Government Engineering College Thrissur.

Conducted by [Ministry of Environment, Forest, and Climate Change](#) [Deutsche Gesellschaft für Internationale Zusammenarbeit \(GIZ\) GmbH](#) and [Climate Collective Foundation](#)

# PATENT

**Sreeharshan M P** (Civil Engineering 3 rd year ) and his brother invented a board game and filed patent for the invention titled “Table top board game”

- ✓ Patent Application No. 202141046057
- ✓ Date of filing: 9 th October 2021
- ✓ Team for the invention: Sreeharshan M P (Civil Engineering 3 rd year student), Hrishikesh M P



## DAKSHA 22

### (20TH ANNUAL ISTE STATE STUDENT CONVENTION) WINNERS

Sl No:	Name	Dept.	Sem.	Event	Position
1.	SUDHEERAN V S	CE	S5	BEST DESIGN ENGINEER	FIRST
2.	NARSHA E K	Arch	S7	BLUEPRINT	FIRST
3.	ANANTHU K	ECE	S5	CIRCUIT WIZARD	FIRST
4.	AKSHAY PRAKASH C P	ME	S7	DISEGNO	FIRST
5.	RACHEL BABU THACHIL	ECE	S3	THE BIG BUSINESS	FIRST
6.	GOWRI M S	PE	S5	SPARK THE JOB	FIRST
7.	PREDULA I	ME	S1	TRASH TO TREASUE	FIRST
8.	SUDHEERAN V S	CE	S5	WHAT IF	FIRST
9.	MARIYABIJU	ME	S3	COMPETITION AS PART OF RESUME BUILDING AND LINKEDIN WORKSHOP	FIRST
10.	ROSHAN SILVESTER LOPEZ	ECE	S5	COMPETITION CONDUCTED AS PART OF UI/UX DESIGNING WORKSHOP	FIRST
11.	RISNI HAMZA	Arch	S7	BLUEPRINT	SECOND
12.	ABED CHULLIYILABUBACKER	PE	S1	BULLS N' BEARS	SECOND
13.	LAKSHMI SYAM	EEE	S3	TWIST THE TAIL	SECOND
14.	ANITHA RAJENDRAN	Arch	S3	TRASH TO TREASURE	SECOND
15.	VISMAYA S NAIR	PE	S5	RED NOTICE	SECOND
16.	ANJIMA U	CE	S5	COMPETITION CONDUCTED AS PART OF INTRODUCTION TO ETABS SOFTWARE	SECOND
17.	VAISHNAVI SABU NATH	CE	S5	CAMPUS AMBASSADOR PROGRAMME	SECOND
18.	SARANG P	PE	S3	RED NOTICE	THIRD



19.	AMRITHA SAMUEL K	Arch	S5	TRASH TO TREASURE	THIRD
20.	DIYA SUSAN THOMAS	ECE	S5	CIRCUIT O MANIA	THIRD
21.	ANUSHRI P	ECE	S3	DECIPHER	THIRD
22.	AKHIL K V	ChE	S5	TWIST THE TAIL	THIRD
23.	SHIYAS MOHAMMED	CSE	S5	WEBCENTRIC	THIRD
24.	VAISHNAVI SABU NATH	CE	S1	PAPER PRESENTATION	THIRD
25.	DON PAUL SHAJAN	ME	S3	BEST DESIGN ENGINEER	THIRD

## INTELLIGENT PEPPER HARVESTER

### *Technology meets Agriculture*

“Nodal centre for robotics and AI (NCRAI) and Agricultural University Thavanoor have successfully built the prototype of an intelligent pepper harvester. The robot detects ripe pepper and harvests them with the help of a motor powered blade connected to the end effector.







IRAC congratulates the students **Akshara Soosan Shaju, Uddhav PM, Gopika V Gopan & Vibitha PV** and Staff member **Sri. M Sajith Kumar** of ECE Department for realizing a prestigious project of CMET, Thrissur (Centre for Materials for Electronics Technology)

### Apparatus Development for the Behavioral plot of Monochromatic Light in a medium under varying Refractive Indices

The development of an apparatus which serves a significant role in the plasmonic based sensor development, is what we intend to build. Plasmonics technology exploits the unique optical properties of metallic nanostructures to enable routing and manipulation of light at the nanoscale. The incident angle versus intensity graph plotted by the proposed apparatus is what makes it relevant for the mission.



The setup works on the principle of Total Internal Reflection. When a monochromatic light (1200 nm NIR) passes through the testing medium, the intensity of reflected light varies with respect to incident angle. Hence a dip is observed in the plot and position of the dip changes with respect to refractive index.

The apparatus consists of:

1. Monochromatic light source with intensity control
2. Micro stepping rotary mechanism with  $0.1^\circ$  for varying the incident angle
3. NIR detector with data acquisition system
4. Graph plotting software

From the graph plotted before and after the testing conditions, the required position of the dip and corresponding intensity of light reflected can be found. This is the vital information required for sensor development.



Dear Colleagues,

**GECT Research Bulletin** is the official 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](mailto:gectresearchbulletin@gectcr.ac.in) at the earliest.

*The newsletter focuses on the following:*

- ▶ Publications of faculty/staff/students in International/National Journals/Conference proceedings (please send the *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 by faculty/staff/students
- ▶ Details with photograph of faculty/staff/students who secured Ph. D degree
- ▶ Details of Ph. D registration of faculty/staff/students under various research guides of our college and other institution.
- ▶ Details of synopsis presented/DC meeting held etc.

*-Editors*

**Editors :** **Dr. Vinod P. Raphael** (Dept. of Chemistry) and **Prof. Anish Babu K. K.** (Dept. of Electronics & Communication Engineering). Contact: Mob: 9287560416, 9288194930

Design & Layout by **Smt. Shincy T P** (Dept. of Electronics & Communication Engineering, GEC Wayanad).