

# **AVISKARA**

**Volume - 4, October 2021**

## **R & D NEWS LETTER**



Karnataka ReddyJana Sangha<sup>(R)</sup>

**VEMANA INSTITUTE OF TECHNOLOGY**

Approved by AICTE-New Delhi, Affiliated to VTU-Belagavi, Recognized by Govt. of Karnataka

#1, Mahayogi Vemana Road, 3<sup>rd</sup> Block, Koramangala, Bengaluru - 560034

## R &D News Letter, Volume 4, October - 2021

### Principal's Note



**Dr. Vijayasimha Reddy B. G.**  
Principal

It is a happy note that a newsletter is getting published to show case some of the research efforts at Vemana Institute of Technology. At Vemana IT, there is a healthy mixture of experimental and theoretical analysis. The COVID-19 pandemic compelled the abrupt conversion of conventional face-to-face instruction to the online format in educational institutions. Urgent and careful planning is needed to mitigate negative effects of pandemic on engineering education that has been traditionally content-centered, hands-on and design-oriented. Besides, this outbreak has created mayhem in the scientific community due to the COVID-19 intricacies, the importance to recognize and address opportunities and strategies for, and challenges of research and strengthening the work force are highlighted.

### DEPARTMENT OF CHEMISTRY

Dr.Sujata F Harlapur, Professor & Head  
[sujataharlapur@vemanait.edu.in](mailto:sujataharlapur@vemanait.edu.in)  
+91-9448908643

Started in the year 1999 and imparting the knowledge of Engineering Chemistry for all programmes. Department has a VTU approved research centre. The potential areas of research are Polymers, Nanomaterials, and Catalysis. Actively involved in research and published articles in peer reviewed journals. The faculty involved in guiding research scholars and student projects.

### Research in Progress

Dr.Vasantha V T has applied for a grant of Rs.30 Lakhs to Vision Group of Science and Technology (VGST), Govt. of Karnataka, under its scheme, Center of Innovative Science & Engineering.

### Faculty Development Program (FDP) organized

A five-day online Faculty Development Programme was organized on “**The role of advanced materials and nanotechnology in present scenario**” in Association with Royal Society of Chemistry (London), UK, India Deccan Local Section and Department of Nanotechnology, VTU, Center for Postgraduate Studies, Bengaluru Region Muddenahalli from 22<sup>nd</sup>- 26<sup>th</sup> June, 2020. This aims to provide opportunities to faculty and students to enrich their knowledge in the field of advanced materials in the present scenario.

### Outcomes:

- Programme was informative.
- The topics are relevant to the current research.
- Participants were enlightened on synthesis, properties and applications of advanced materials.

## Guest Lectures

A memorial lecture was organized on National Science Day in remembrance of Sir Dr. C V Raman. Prof. M. R. Nagaraju, a retired professor and former chairman of Karnataka State Council for Science and Technology (KSCST) as a guest speaker.



## Webinar

Webinar on “Insights on writing an impactful manuscript & navigating through peer review process” was organized in association with Royal Society of Chemistry (London), UK, and India Deccan Local Section on 09<sup>th</sup> July, 2020. Mr. Ershad Abubacker, Editor, Royal Society of Chemistry, (London), UK was the invited speaker.

## Patent Filed

Dr.Vasantha V T has applied for a patent for his work “Four stroke petrol engine piston oil ring”, Intellectual property India patents / designs / trademarks Geographical indications (iP). Application Number: 334768-001, Cbr Number: 19714, Cbr Date: 30-10-2020.

## Research Publications

1. Dr. Suneeta, Dr. Sujata Harlapur and Dr. Shantabasavareddi. F. Harlapur, “Ecofriendly antimicrobial dyeing for cotton fabric using natural extract of marigold”, Turkish journal of

computer and mathematics education, 12(2), 957-962, Apr 2021.

2. Sujata F Harlapur, Suneeta Harlapur and Shantabasavareddi F Harlapur, “Enhancement of Anti-Bacterial Properties of Cotton Fabric by Using Neem Leaves Extract as Dye”, Materials Today: Proceedings, <https://doi.org/10.1016/j.matpr.2020.10.209>.2020.
3. B. N. Rashmi, Sujatha F. Harlapur, C. R. Ravikumar, B Avinash, K. Gurushantha, M. B. Divakara, M. S. Santosh, K.Veena, “MoO<sub>3</sub> nanoparticles based electrodes as novel electrochemical sensors for the detection of H<sub>2</sub>O<sub>2</sub>”, Materials Today: Proceedings, <https://doi.org/10.1016/j.matpr.2020.09.161>.

## Book chapters:

1. Dr. Sujata F Harlapur, Dr. Suneeta and Dr. Shantabasavareddi F Harlapur, “Transitory of nanomaterials and their applications”, Book Title: "Current trends in materials chemistry" Publisher: United Agencies, 152-167, ISBN: 978-93-85682-66-7, 2021.
2. Sujata F Harlapur, Suneeta Harlapur and Shantabasavareddi F Harlapur, “Ecofriendly marigold dye as natural colourant for fabric”, Book Title: Stress in abiotic plants, Intechopen Publisher, UK DOI:10.5775/intechopen.93823, Oct.2020.

## DEPARTMENT OF HUMANITIES

Anjali R K, Assistant Professor,  
anjaliirk@vemanait.edu.in  
+91-9980692263

The Department actively involves in organizing and conducting of curricular and extracurricular activities for students. The faculty also orient and train the students in the following domains.

- Higher education and career guidance for competitive exams: UPSC, KPSC, GRE, TOFEL, and IELTS.

- Technological Innovation Management and Entrepreneurship opportunities.
- Technical English to develop effective verbal and nonverbal communication skills.
- Seminars, Essay writing, Poem writing, Quiz, and Debate competitions.

### **FDPs organized and attended:**

1. Prof. Anjali R K, has organized/participated the following FDPs:
  - “Role of mathematics on academic research and Technology,” from 13<sup>th</sup> to 17<sup>th</sup> July, in association with Dept. of Mathematics.
  - Attended a five days FDP on “EDUCATION 4.0 and A Future ahead” from 10<sup>th</sup> to 14<sup>th</sup> August, at Sri Sairam Engineering college, Bengaluru.
  - Attended a one-week offline short term training programme on “Professional Ethics, Moral human values, Character building in modern education” sponsored by AICTE, held at UBDTCE, Davanagere.
2. Prof. Joy Vargheese T has organized the following events:
  - Two days online “Quiz Competition” for first year students on 26<sup>th</sup> and 27<sup>th</sup> June 2021.
  - An essay writing competition for the first-year students on the topic “Higher Education after Pandemic: An Indian Perspective” on 27<sup>th</sup> Jan.
  - A one-day National Level Webinar on the topic “Soft skills for Professional and non-Professional Courses of Higher Education and Educational Policies of Emerging India” on 20<sup>th</sup> July.

## **DEPARTMENT OF PHYSICS**

**Dr. PraveenKumar R S, HoD**  
[praveenkumarrs@vemanait.edu.in](mailto:praveenkumarrs@vemanait.edu.in)  
 +91-9845628519

Department of Physics started in the year 1999 and has been teaching Engineering Physics at the first year level for all branches of Engineering. The faculty are actively involved in research activities in the advanced areas: elastomer technology, super capacitor applications, conducting polymers, and conducting polymer nanocomposites.

### **Webinar organized**

Webinar on “Insights on writing an impactful manuscript & navigating through peer review process” was organized in association with **Royal Society of Chemistry (London)**, UK and India, Deccan Local Section on 9<sup>th</sup> July, 2020.

### **FDPs attended**

Five Days online FDP on “The role of advanced materials and nanotechnology in present scenario”, organized by Vemana Institute of Technology, Bangalore, 13<sup>th</sup> to 17<sup>th</sup> July 2020.

### **Patent Filed**

Dr. Praveen Kumar R S has filed a patent on “Four stroke petrol engine piston oil ring”, Intellectual property India patents/designs/trademarks Geographical indications (IP). Application Number: 334768-001, Cbr Number: 19714, Cbr Date: 30-10-2020.

### **Journal Publications**

1. **Madhusudhan C K**, Mahendra K, Madhukar B S, Somesh T. E, Muhammed Faisal, “Multifunctional polypyrrole / multi-walled carbon nanotube composite material: dielectric, humidity sensing and broadband EMI shielding properties,” Polymer Science series B, Springer, ISSN1560-0904, 2021, Vol. 63, No. 3, pp. 280–290. DOI:10.1134/S156009042103009X.2
2. **Madhusudhan C K**, Mahendra K, Madhukar B S, Somesh T. E, Muhammed Faisal, “Incorporation of graphite into iron decorated

polypyrrole for dielectric and EMI shielding applications, ”Synthetic Metals, Elsevier, 267 (2020) 116450, DOI: 10.1016 / j.synthmet.2020.116450.

## Conference Publications

1. **Madhusudhan C K**, Attenuation of High Frequency Electromagnetic Waves by Polyaniline Nanocomposites with Manganese Dioxide, E-conference organized by collaborative efforts of Emergent Materials Journal (EMMA) Springer and Center for Advanced Materials, Qatar University, Qatar on November 15-17, 2020.
2. **Madhusudhan C K**, Absorption of Broadband Electromagnetic Waves by Polyaniline-coated Barium Ferrite Nanocomposites, 3 days Virtual International Conference on “Recent Trends in Electrical, Electronics, Telecommunications, Instrumentation Engg., Medical Electronics & Physics (IC RTEETIMP-2020)” held at DSCE, 7<sup>th</sup>-9<sup>th</sup> Dec 2020.

## Achievements

Prof. Madhusudhan C K has received best paper presentation award in “International virtual conference on recent trends in electrical, electronics, telecommunications, instrumentation engineering, medical electronics engineering and physics,” held on 7-9<sup>th</sup> Dec. 2020, DSCE, Bangalore.

## Department of Mathematics

Dr.Kempegowda.M, Assoc Prof. &HoD  
[kempegowdam@vemanait.edu.in](mailto:kempegowdam@vemanait.edu.in)  
+91-9066810171

The Department of Mathematics was established since from the inception of Vemana IT. Presently the department has nine experienced and well qualified faculty. Among them four are with Ph. D degree and remaining are pursuing. The

department has an approved Research center under VTU, Belagavi. The faculty members are involving in research activities in different domains like Fluid Mechanics, Differential Geometry and Graph theory. Their research findings are periodically presented in conferences and published in journals. The department has actively taken part in organizing Induction programs for first year BE students.

## Research in Progress

A research scholar, Mrs. Shuba R N pursuing her Ph. D in the Research Centre, under the guidance of Dr. Jayalakshamma D. V, is working on Nano fluid flow in different geometries.

## FDP’s Organized

Five days virtual FDP on “Role of Mathematics in Academic Research and Technology” during 13<sup>th</sup> to 17<sup>th</sup> July, 2020 to enrich the present academic research knowledge and use of technologies for the research scholars and faculty of all domains. First day session was started by Dr. Dinesh P A; Associate Professor from Ramaiah I T, Bangalore on “Application of Mathematics in Nature”. In his address, he mentioned that Mathematics seeks to discover and explained abstract regularities in nature through mathematical hypothesis.

Dr. Ramakrishna Prasad, Retd., Prof. JNTU, Hyderabad had taken the session on the second day on “Effective use of Mathematics in Technology”. During his interaction, he explained how the technology provides additional opportunities for learners to see and interact with mathematical concepts. On the same day we had Dr. Gangavathi P, Associate Prof., Sri Sai Ram College of Engineering, Bangalore who spoke on “Emerging Trends in Mathematics”. She addressed on role of mathematics in Artificial Intelligence and Machine Learning.

Dr. Chakravarthula S K Raju, Assistant Prof., GITAM University, Bangalore gave a talk on “The Mathematics of Google Search–Page Rank Algorithm”.

Day four was engaged by Dr. Murali, Professor, Department of Mathematics, Ambedkar IT, and Bangalore on “Research in Mathematics”. He explained the role of graph theory and its applications in current research.

Last day session was taken by Dr. M C Raju, Prof. JNTU College of Engineering, Pulivendula, Andhra Pradesh. He gave the presentation on “An Overview of Research Impact Metrics”. He explained how Author Metrics measure the impact and productivity of a researcher, how citation tracking can be used to determine quality of an article, journal and book. A good response was received by the participants across the country.

### Patent Filed

Dr. Gangavathi P, Dr. Roopa V, **Yogeswara Reddy P., Venugopal G., Dr. Jayalakshamma D V, Sathy Suresh,** Dr. Nalinakshi N., have patented an application no.: ‘202141016617A’ and published a work entitled “A system and method for polarization -maintaining fibers of twist sensor with different cladding diameters”, on 23/4/2021.

### Research Publications

**Kempe Gowda M.**, “Flow of Non-Newtonian Couple Stress fluid between two moving parallel disks: Exact solutions and Stability Analysis”, *International Journal of Latest Trends in Engineering and Technology*, Vol. 15 (2), pp 011-017, 2020

Gopinatha K. R., **Jayalakshamma D.V.**, and Chandrashekhar D.V., “Drag Effect on Fluid Flow in Composite Regions Past a Solid Core in Presence of Magnetic Field”, *International*

*Journal of Engineering Sciences and Management-A Multidisciplinary Publication of VTU*, Vol. 2(2), pp 21-27, 2020.

Umadevi R., Chandrashekhar D.V. Dinesh P. A., and **Jayalakshamma D.V.**, “Fluid Flow in Composite Cylindrical region”, *Advanced Engineering Forum*, Vol. 40, pp 63-72, 2021

P. Gangavathi and **Yogeswara Reddy P.**, “Slip and hall effects on the peristaltic flow of a jeffrey fluid through a porous medim in an inclined channel”, *Materials Today: Proceedings*, Vol.10, pp 2214-7853, 2021.

**Yogeswara Reddy P.**, and G.S.S. Raju, “Influence of magnetic field and radiation on heat and mass transfer flow of nanofluid over an inclined vertical plates embedded in porous medium”, *Turkish Journal of Computer and Mathematics Education*, accepted for publication

Pradeep Kumar., Madhu T. S., and **Sharath B.R.**, “Projective changes between generalized  $(\alpha, \beta)$ -metric and Randers metric”, *International Journal of Advances in Pure Mathematics*, Vol. 6, pp 312-321, 2020.

### Ph. D Awardee



Mr. Sharath B. R has been awarded doctoral degree by VTU in April 2021 on his thesis entitled “A geometrical study on curvature properties of Finsler spaces with  $(\alpha, \beta)$ -metric”. He carried out his work under the supervision of Dr. Pradeep Kumar.

### Department of Civil Engineering

Prof. Elavarasi V, HoD,  
[elavarasi@vemanait.edu.in](mailto:elavarasi@vemanait.edu.in)  
+91-98450 30235

The department has a total intake of 60 students. Since its inception, there has been progressive growth in both infrastructure and academics. The department has state-of-art laboratory facilities

for Building material testing, Survey, CAD, Geology, Geotechnical, Concrete & Highway Material, and Environmental Engineering. The laboratories have licensed Software for drafting the building drawings. The following testing facilities are available to test and characterize materials:

- A 100-ton digital universal testing facility for determining the mechanical properties of materials.
- Self-compacting concrete equipments.
- An ultrasonic pulse velocity meter for determining the quality of concrete.

Currently, there are two research scholars pursuing their PhD in the areas of Self-healing of concrete and alkali activation. The department regularly organizes the guest lectures, seminars/webinars, workshops, industrial visits, and annual survey camps.

#### Workshops / FDPs attended

1. Prof. Likhith M L attended an FDP on "Insights on Writing Research Proposals & Funding Opportunities," July 20<sup>th</sup> – 24<sup>th</sup>, 2020.
2. Prof. Likhith M L, and Prof. Varun T N attended ATAL FDP sponsored by AICTE on "Advances in Concrete Technology and Sustainable Construction Practices," Sept 21<sup>st</sup> – 25<sup>th</sup>, 2020.
3. Prof. Likhith M L attended an ATAL FDP sponsored by AICTE on "Strategic Civil Infrastructure," Nov 23<sup>rd</sup> – 27<sup>th</sup> 2020.
4. Prof. Elavarasi V attended an ATAL FDP sponsored by AICTE on "Environmental Geo technology," Sept 14<sup>th</sup> – 18<sup>th</sup>, 2020.

#### Technical talks and FDP:

The list of webinars and FDP's organized are:

1. A Technical talk by Mr. Rohith N Gowda, Director & Founder - HOSHO Consulting Private Limited, Bengaluru on "Overview on

Open roads Concept Station," July 13<sup>th</sup>, 2020, the objective of this webinar is to enrich on Transportation Engineering and CAD Industry.

2. A lecture on "Typical Construction Practices" delivered by Dr. Manjunath G.R. Professor, Saphthagiri College of Engineering, Bengaluru, on July 21<sup>st</sup>, 2020. This lecture enlightened on the importance of Procurement, Partnering, Risk
3. A motivational talk on "Job Opportunities for Engineers Defence Services", July 26<sup>th</sup>, Kargil Vijay Diwas by Colonel Vinod M Sasalatti, Deputy chief engineer BMRCL. He educated about the various job opportunities available in the field of defense services.
4. Dr. H. B. Balakrishna, Professor Bangalore Institute of Technology, presented a webinar on Remote Sensing & GIS on May 17<sup>th</sup>, 2021. The webinar mainly focused on different types of Satellites, the Collection of data, Components of Remote sensing & GIS, application of GIS in various fields, and Software used.
5. Dr. Jagadish Vengala, Head, EDC Incubation center, Associate Professor, PVP Siddhartha Institute of Technology, Vijayawada, A.P., presented a webinar on Innovative Techniques in Civil Engineering on May 21<sup>st</sup>, 2021. The webinar mainly focused on Innovations in Civil Engineering, planning work, organizing, presenting, and using materials for construction effectively.
6. Dr. Shriram Marathe, Assistant Professor, NMAM Institute of Technology – NITTE, presented a webinar on "Preparation Strategies for Gate Examination" on June 6<sup>th</sup>, 2021. The webinar mainly focused on different job opportunities available, higher education, and stipends available, followed with the weightage of marks in every subject in many branches concerning which the preparation to excel in the examination.

7. Mr. Chethan, Head, Public-Private Partnership Cell, Govt. Of Karnataka presented a webinar on "Public-Private Partnerships-Myths and Facts." on June 10th, 2021. The webinar mainly focused on explaining Public-Private Partnerships, their process and procedures, implementation, and documentation.
8. A FDP by Mr. Hemanth Reddy on “Working principle of total station and execution of survey projects” was held on 22-03-2021.

**Industrial Visits**

A site visit (Figure 1) to AMR industrial estate was organized for final year students 2021.



(a)



(b)

**Figure 1: (a) Construction yard at Hosur Road, Bengaluru. (b) Students’ interaction with site engineers.**

**Extensive Survey Camp**

A 2 week (29<sup>th</sup> Mar – 10<sup>th</sup> Apr) academic survey project was conducted for 6<sup>th</sup> semester students at UVCE – Jnana Bharathi Campus (Figure2). The students were accompanied by staff members. The entire camp period was evenly split for all the tasks and drawings involved, and our students made the most benefit out of the camp. The important tasks carried during the camp are: Survey of New Tank Project, Highway planning and alignment, Water supply and village planning, Old Tank Project, and Layout planning.



**Figure 2: Group Photo of participants at Extensive survey camp UVCE, Bengaluru.**

**Student R & D Activities**

**Grants Received:**

Prof. Darshan N and Prof. G A Satish received a grant of Rs.6000 for student project proposal entitled “Fiber-Reinforced Foam Concrete Blocks”. under the 44<sup>th</sup> series of student project program, KSCST, 2020 – 21.

**Grants Applied:**

1. Prof. Likhith M L and Prof. G A Satish applied for a funding project “Bamboo Reinforced Tiles,” under the aegis of VTU on July 1st, 2021.
2. Prof. Munikrishna L and Prof. G A Satish applied for a funding project "Domestic Wastewater treatment using Natural Fibrous



material under the aegis of VTU on July 1st, 2021.

## Student Achievements

1. Aishwarya, Lohitha Reddy, and Goutham won first place in the final year project exhibit 2020 – 21 held at Vemana IT, for the project “Geopolymer fiber reinforced concrete blocks” with a cash award of Rs.2000/-.



**Figure 3: Curing chamber exhibited by the students (First-place winners).**

2. Surendra, Vijayendra, Vishnupriya and Thejas Reddy won second place in the final year project exhibit 2020 – 21 held at Vemana IT, for the project “Bamboo reinforced tiles” with a cash award of Rs.1000/-.



**Figure 4: Bamboo mesh with moulds exhibited by the students (Second-place winners).**

3. Vishnupriya Gangadhar of the 7<sup>th</sup> semester has won first place in "Technical content writing based on perception" organized by the ISTE student chapter, Vemana IT on December 21<sup>st</sup>, 2020.

## Department of Computer Science & Engineering

Dr. Ramakrishna M Prof. & HoD  
[ramakrishna@vemanait.edu.in](mailto:ramakrishna@vemanait.edu.in)  
+91-9686725572

The Department of Computer Science and Engineering established in 1999, has a Center for Research approved by VTU, Belagavi. The main research areas of interest are Internet of Things (IoT) & Networking, Data Mining, Machine Learning & Artificial Intelligence. The research laboratory is well equipped with state of the art software & hardware tools.

## Grants applied

1. Shilpa G V and Mary Vidya John has applied for a fund of two lakhs to VGST under the scheme: Faculty development programme (FDP).

2. Dr. S. Ambareesh and Dr M Ramakrishna has applied a proposal on “Smart Robotic Dustbin” for a fund of Rs. three lakhs under VTU research grant scheme.

3. Kantharaju H C has applied for a fund of Rs twenty five thousand to VGST under the scheme: Publication research award.

## Student achievements

1. A project titled “Smart Billing and direction controlled trolley” carried out by Ramyambika R K, Ramya S Reddy, Ranjini S, & Shilpa P under

the guidance of Prof. Rashmi was selected a fund of Rs.5500, from KSCST Bengaluru.

2. Project titled “Placement Management System” by Navyashree Narayana Bhat, Nethaji M Gowda , Ranjith S and S Shreyes under the guidance of Prof. Veena G has won first prize in student project exhibition held on 4<sup>th</sup> August 2021, Vemana IT.



**First prize winners**



**Second prize winners**

### **Patents filed**

1. Noor Basha has filed and published a work entitled “Remote pain monitoring system for knee joint pain of elderly people” in the Australian Government/IP Australia with an application no.: 2020101864 dated 9<sup>th</sup> September 2020.

<https://pericles.ipaustralia.gov.au/ols/auspat/quickSearch.do?queryString=2020101864&amp>  
[mp](https://pericles.ipaustralia.gov.au/ols/auspat/quickSearch.do?queryString=2020101864&amp).

2. Rosline Mary and Suma S have filed and published a work entitled “An electronic medical record database system using blockchain-enabled key-value storage system” with an application no.: 202041055389 dated 29<sup>th</sup> January 2021.

[https://ipindia.gov.in/writereaddata/Portal/IPJournal/1\\_4947\\_1/Part-1.pdf](https://ipindia.gov.in/writereaddata/Portal/IPJournal/1_4947_1/Part-1.pdf)

### **Research Publications:**

1. Shilpa G V, “Analysis on Inference of Sound-to-Patterns in Multi-Lingual Context for Linguistic Reconstruction”, Int. J. of Advanced Science and Technology, Vol. 29, No. 7, 2020.
2. Jayshree L K, “EEG signals in Epilepsy Seizure Detection: An Empirical Study”, IEEE Int. Conf. on Electronics, Communication and Aerospace Technology (ICECA), 2020, pp 295-300.
3. Kantharaju H C, “Enhancing Performance of WSN by Utilizing Secure QoS based Explicit Routing”, Int. J. of Computer Aided Engineering and Technology (IJCAET), Vol. 13, No. 1/2, 2020.
4. Kantharaju H C, “An Energy Efficient Authentication Scheme Based on Hierarchical IBDS and EIBDS in Grid Based Wireless Sensor Networks”, Int. J. of Information and Computer Security (IJICS), Vol. 13, No. 1, 2020.
5. Noor Basha, “Analysis and Forecast of Heart Syndrome by Intelligent Retrieval Approach”, Springer Book chapter, Vol. 11, May 2020.

6. Mamatha C R, “Mobility Prediction based Energy efficient QoS Routing”, Int. J. of future generation and communication networking, Vol 13, No. 1, 2020.
7. Rashmi R, “Turbo Decoder for LTE High Speed band Efficient Architecture”, Int. J. of future generation and communication networking, Vol 13, No. 1, 2020.
8. Rosline Mary, “A Comprehensive Survey on Deep Learning Based Automated Diabetic Retinopathy Detection”, J. of Xidian University Vol. 14, Issue 6, 2020.
9. S Suma, “IoT based motion detector using node MCU and BLYNK app”, J. of Xidian University Vol. 14, Issue 5, 2020.

#### **Workshops/Webinars attended and organized**

25 workshops were attended online by the faculty and 12 webinars were organized on various domain.

#### **Student Achievement**



**Ms. Sannidhi A (1VI16CS091)** won **first rank** for the year 2019-2020 and awarded with 6 VTU gold medals.

#### **Faculty Achievement**



**Prof. Kantharaju H C** was awarded PhD by VTU on 11<sup>th</sup> November 2020, for the research

work entitled “Enhancing System Performance of Wireless Sensor Network by Secure Assemblage Based Data Delivery”, under the supervision of Prof. K. N. Narsimha Murthy.

### **Department of Electronics & Communications Engineering**

Dr. Chandra Shekar S. M, Prof. & HoD,  
[smc@vemanait.edu.in](mailto:smc@vemanait.edu.in)  
 +91-9019072157

The department of Electronics and Communication Engineering (ECE) was established in the year 1999. Since its establishment, there is a progressive growth in both infrastructure and academics. The department offers an UG program with an intake of 180 and has a VTU approved R & D center. The department has well qualified, experienced faculty involved in various research activities. The department has well-equipped laboratories with necessary hardware and software. It has state of the art measuring and test facilities and is headed by two eminent scientists - Dr. Ramachandran A (formerly of NAL) and Dr. Srinivasan R (formerly of IIAP). The department regularly organizes guest lectures / seminars / workshops and skill enhancement training programs by eminent speakers from reputed organizations and national labs to keep the students and staff in line with the latest technologies.

#### **Ongoing Research:**

Design, development and analysis of controllers: An Induction Motor, Brushless DC (BLDC) Motor, Switched Reluctance Motor (SRM) was under progress.

Principal Investigator: Dr. Reddy Sudharshana K.

Co-Principal Investigator: Dr. Chandra Shekar S. M.

## Research Grants Applied 2021

1. Prof. Harshada J. Patil and Prof. Priyanka K, have applied for a grant of Rs.25Lakhs under VTU Research Grant Competitive Research Funding scheme 2021, The purpose is to carry out research on “Structural Health Monitoring of Heritage Buildings in Karnataka”.
2. Dr. Reddy Sudharshana K, Dr. Chandra Shekhar S M and Prof. Shruthi M, have applied for a grant of Rs.25Lakhs under VTU Research Grant Competitive Research Funding Scheme 2021, The objective is to carry out research on Study of Electro Magnetic Interference in a Switched Reluctance Motor Speed Controller with and without load, by Simulation and Validation by experiments.
3. Dr. Manu K S and Dr. Sunil H have applied for a grant of Rs.2.50Lakhs under VGST RGS/F competitive Research Funding scheme 2021. The purpose is to carry out research on “Automated Anti-Glaring system for Automobiles”.
4. Dr. Parameswara MC and Prof. Girish N, have applied for a grant of Rs.4Lakhs under VGST K-FISTL1 competitive Research Funding scheme 2021. The purpose is to carry out research on “An IoT enabled Reconfigurable Integrated system for Milk Quality Detection and Analysis”.
5. Dr. Suneeta & Dr. Sujatha F. Harlapur, have applied for a grant of Rs 3.5lakhs under VGST RGS/F competitive Research Funding scheme. The purpose is to carry out research on “IOT based smart ECOBIN”.
6. Dr. Chandra Shekhar S M, and Prof. Harshada J. Patil have applied for a grant under VGST- KFEST-L1 competitive Research Funding scheme 2021, The purpose is to carry out research on “Structural Health Monitoring of RCC structure using Wireless Sensor Area Network”.

## Student Achievements

Title of the Project	Name of the Student	Name of the Guide	Funding Agency	Funding Amount
Water Leakage detection and Smart Agriculture using IOT	1. Hema A 2. Megha M 3. Nikitha R 4. Amoolya J	Prof. Grish N	KSCST, Bengaluru	Rs 5500/-
Smart Waste Management System	1. Ramya S M 2. Supriya K V 3. Geetha B V	Prof. Ankitha A	KSCST, Bengaluru	Rs 5000/-

## Project Exhibition 2021

The final year student project exhibition was held on 4<sup>th</sup> August. A total of 10 project groups were exhibited. The projects have been evaluated by the external judge Mr. P. Achut Rao, National Institute of Design, Bengaluru. A total of three projects were prized with cash awards.



**First prize:**

Swimming Pool drowning detection and alert system using machine learning.



**Abhilash V R, Chethan V, Karthik K, and Manish V  
(First Prize Winners)**

**Second prize:**

Automated Portable Life supporting system.



**Tejaswini G N, Varalakshmi K, and Sagar S Jairaj  
(Second prize winners)**

**Patents Applied/Published:**

1. Girish N, A method for error detection and error correction for underwater communication based on adaptive turbo decoder with feedforward message decoding and memory logic for fast decoding, dated: 12/2/2021.
2. Girish N, A method for performing OFDM modulation and demodulation based on DTCWT with n-sub carriers designed using pipelined folded reusable systolic array

architecture with reconfigurable logic, dated: 12/2/2021.

3. Harshad J Patil, Photonic crystal based optical sensor for detection of pesticides in liquid, dated: 25/9/2020.

**Research Publications:**

1. Kusuma G S and Dr. Anitha V, ‘ A Survey on Secure Fog-Computing Infrastructure for Internet of Vehicles’, International Journal of Electronics Engineering (ISSN: 0973-7383) , Vol. 13, Issue 1 pp. 1-5, Jan.-June 2021
2. Sindumathi C and Kusuma G S, ‘A survey on Performance evaluation of VANET’s Routing protocols’, International Journal of Electronics Engineering (ISSN: 0973-7383) Vol. 13, Issue 1, pp. 6-11, Jan. - June 2021.
3. Priyanka K and N V Uma Reddy, “Multi node based smart monitoring system with motor dry run avoidance for sustainable agriculture”, Instrumentation Measure Metrologie, Vol. 20, No. 1, pp. 39-47, Feb. 2021.
4. Girish N and Veena M B, “Low Power Design of Adaptive Turbo Decoder with Feedforward Message Decoding and Look-Up-Table Approach”, Journal of Theoretical and Applied Information Technology, Vol.98. No 24, 31st December 2020. ISSN:1992-8645
5. Byra Reddy G R and Prasanna Kumar H, “Smoothing of Mammogram Using an Improved Gradient based Technique”, Advanced Biomedical Engineering, Vol 9, pp. 202–208, Sep. 2020 (Scopus and Web of science).
6. Byra Reddy G R and Prasanna Kumar H, “A review on multimodal medical image fusion,” International Journal of Biomedical Engineering and Technology (IJ BET), Vol. 34, No. 2, Oct. 2020.
7. Girish N, Veena M B and Cyril Prasanna Raj, “Low Power Area Optimum Configurable

160 to 2560 Subcarrier Orthogonal Frequency Division Multiplexing Modulator-Demodulator Architecture based on Systolic Array and Distributive Arithmetic Look-Up Table”, Journal of Microelectronics, Electronic Components and Materials, Vol. 51, No. 2, pp. 119 – 134, 2021.

8. Chinna V Gowdar, M. C. Parameshwara, Savita Sonoli, “Approximate Full Adders for Multimedia Processing Applications”, IEEE Int. Conf. for Innovation in Technology, (INOCON), 2020, pp. 1-4.
9. Suneeta, Sujata Harlpur, “Enhancement of antibacterial properties of cotton fabric by using neem leaves extract as dye”, Materials Today: Proceedings, ScienceDirect, Vol. 44, Part 1, 2021, pp. 523-526.
10. Suneeta, “Co-simulation of linear congruential generator by using Xilinx system generator and MATLAB Simulink’, Int. J. of Reconfigurable and Embedded Systems (IJRES), Vol. 10, No. 2, pp.109-114, July 2021.
11. Sathyanarayana N, “A survey on Vehicle Detection and Classification for Electronic Toll Collection applications”. Int. Conf. on Distributed Computing and Optimization (ICDCOT), July 2021.

## Department of Information Sciences & Engineering

Prof. Rajanna. M, Assoc. Prof. & HoD  
rajannam@vemanait.edu.in  
**+91-9886443318**

Department of Information Science and Engineering promotes multi-disciplinary research and technological activities among faculties and students. Major Areas of Research are: Machine Learning, Data mining, Wireless Sensor Networks, Image Processing, Cloud Computing, Big Data Analytics, Media Streaming and Computer Networking, Internet of Things (IoT).

## Center of Excellence

### Memorandum of Understanding (MoU)

1. An MoU was signed with KSNA Labs for student internship program.



**Mr. Pradeep K, Mr. PurnenduBhusan Das, Dr. Vijayasimha Reddy B G and Prof. Rajanna M exhibiting the MoU copy.**

2. An MoU was signed with Proton Expert Systems & solutions Pvt Ltd. labs for internship and placement program.



**Ms. AkshithaVenneela and Prof. Rajanna M exhibiting the MoU copy.**

## Grants Applied and Received

1. Mrs. Gauri S Rapate & Mrs. J Ruby Dinakar have submitted a proposal on “An integrated platform to empower students with employability skills based on customized collaborative learning by identifying iceberg in skill development” for a fund of Rs. 20 Lakh, to the VGST, Bengaluru.

2. Ms. Lakshmi Shree K & Mrs. Gauri S Rapate, have submitted a proposal on “Smart waste disposal for urban cities” for a fund of Rs. 20 Lakh, to the VGST, Bengaluru.
3. Mrs. Mythili M & Mrs. A Stella have submitted a proposal for Faculty Development Programme on “Next Generation Systems” to the VGST for amount of Rs. 2,50,000.
4. Prof. Rajanna M & Mr. Manoj Kumar H have submitted a proposal on “Hate speech, Cyber Bullying & its Impact on the Mental Health status of the victim using Deep Learning Techniques” for a fund of Rs. 15.60 Lakh, to the VTU, Belgavi.

### **Students Achievements:**

1. Mr. Shubham Kumar, Mr. Sujit Kumar Tiwari, Ms. Shreenidhi N Hegde, Ms. Varsha for a project; “Standardized Digital Raw Milk Quality Analyzer” under the guidance of Dr. S. Nandagopalan has been granted a fund of Rs. 4500 by KSCST, Bengaluru.
2. Project titled “IoT Based Covid Patient Monitoring System” by Jayanth V, Karmjeet Singh, Manoj Achari L N, and Muddireddypalli Pavan Reddy under the guidance of Prof. Manoj Kumar won first prize in the project exhibition held on 4<sup>th</sup> Aug 2021.
3. Project titled “Automated Handwriting Analysis for Human Behavior Prediction.” by Pragya Rajesh Deshbhratar, Prashanth N, Priyanka Choudhary, and Simranjit Kaur under the guidance of Prof. Stella A, has won second prize in the project exhibition.

### **Patents Filed**

“A Collaborative Smart Crop Yield Prediction and Estimation System” filed on 15<sup>th</sup> March 2021 to Indian Patent Office. **Patent Id:** 202141010849  
**Inventors:** Anu Jose , Dr. S Nandagopalan and Vidhya U.

### **Research Publications**

1. Gauri Sameer Rapate, Naveen N C, “Energy Efficient QoS guaranteed Cross Layer Solution (EEQCL) for Mesh Backbone IoT Networks”, Int. J. of Recent Technology and Engineering (IJRTE), Vol. 8, Issue 3S2, pp. 352-358, Oct. 2019.
2. Mythili M, Vasanthi Kumari P, “Crop Monitoring to Measure Internal Quality of Onion”, Int. J. of Advanced Research in Computer and Communication Engineering Vol. 9, Issue 7, pp. 12-17, July 2020.
3. Ms. Lakshmi Shree K, Mythili M, “Recommendation System based on Soci-Similarity using Social Media Data”, IJARCCCE, Vol 9, Issue 8, 2019.
4. A Stella, Vasanthi Kumari P “Early Prediction of Chronic Kidney Disease in Adolescents Using Machine Learning”, IJARCCCE, Vol. 9, Issue 7 July 2020.
5. Sridevi K N, Prakash S “Comparative Study on various Clustering Algorithms Review” IEEE Int. Conf. on Intelligent Computing and Control Systems (ICICCS), May 2021.

### **Workshops/Webinars attended and organized**

8 workshops were attended online by the faculty and 20 webinars were organized on various domains.

## Faculty Achievement



Mrs. Gauri S Rapate has won Gold Medal in FDP conducted by NPTEL, Swayam Course “Programming in JAVA”.

## Department of Mechanical Engineering

**Dr. Lokesh G Reddy, Professor & HoD,**  
[lokeshgreddy@vemanait.edu.in](mailto:lokeshgreddy@vemanait.edu.in),  
**+91-9448694378**

The department aspires to be one of the reputed and recognized department in dealing with innovative research avenues. Amidst pandemic, and suspension of college activities for a certain period, department was able to contribute towards research activities to a considerable extent. The department has well qualified faculty, involved in various research activities. The department has carried out consultancy work with General Electric (GE Healthcare), Bengaluru, and Ministry of Micro, Small and Medium Enterprise (MSME), Government of India. The department has also conducted free internship programs for students.

## Research in Progress

For the in-house developed drop weight test machine, an automatic releasing mechanism and velocity measuring device was designed and developed by faculty Mr. Mujeeb Pasha with the guidance of Dr. T. Yella Reddy under the leadership of Dr. Lokesh G and principal Dr. Vijayasimha Reddy B. G. Automatic releasing is of rack and pinion mechanism for the drop load.



**Automatic releasing mechanism for the drop weight test facility.**

A velocity measuring device with sensors was designed and developed for the impact test machine. Impactor hits the specimen at certain weight and as it passes through sensors, it gives the digital reading of velocity with which the mass is impacted.



**Velocity measurement device for drop weight impact test machine.**

Split Hopkinson Pressure Bar (SHPB) set up was designed and developed for analyzing the mechanical properties of materials at high strain rates.



**Split Hopkinson Pressure Bar (SHPB) Test Setup.**



## Consultancy Projects

Department has undertaken the consultancy from **GE Healthcare, Bengaluru** for evaluating the energy absorbed by “**X-ray Casing**” under dynamic load conditions with Drop weight Impact test facility. Firstly, X-ray casing was tested for 50 kg<sub>f</sub> load and 1m height drop. In continuation of work, it was tested for dropping of 63.5 kg<sub>f</sub> load and for varying heights also.

## Toyota Centre of Excellence

M/s. Toyota Kirloskar Motor Pvt. Ltd. has established a centre of excellence (Toyota-Vemana Excellence Centre) in automotive domain, by supplying the cut section of complete drive line with engine, cut section of complete Toyota Innova chassis assembly. engine and transmission dismantling.



**Toyota Innova chassis assembly**



**Engine with drive line**

## Grants applied for

1. Department has submitted 4 proposals for VGST under different programs.
2. Studies on high strain rate response of Gyroid Labrinth lattice structures fabricated by Laser powder bed fusion (LPBF) based additive manufacturing for automotive applications- K\_FIST L2. (20 Lakhs for 2 years)  
Principal Investigator – Dr. Vijayasimha Reddy. B. G  
Co-Principal Investigator – Mr. Ashok Kumar. C.N.
3. Mechanical response of materials at high rates of strain – FDP. (2 Lakhs for 2-day workshop)  
Principal Investigator – Dr. VijayasimhaReddy. B. G  
Co- Principal Investigator – Mr. Mujeeb Pasha
4. Design and development of a solar powdered biomass prototype gasifier. K-FIST L1. (15 Lakhs for 2 years)  
Principal Investigator – Dr. B.Aparna  
Co- Principal Investigator – Dr.Lokesh. G.Reddy.
5. Hydrogen combustion analysis and regularization of it as an alternative fuel in IC Engines. RGS/F. (3 Lakhs for 1 year)  
Principal Investigator-Mr. Hemanth Kumar P  
Co-Principal Investigator - Mr. Sampath Kumar.

## Student Achievements:

1. Two final year projects were selected for the 44<sup>th</sup> series of student project programme by Karnataka State Council for Science and Technology, (KSCST) Bengaluru. The projects entitled are “*Biogas extraction from solid waste and performance of CI engine*” and “*Fabrication of manually operated corn roasting machine*”.
2. Two projects were selected for funding to VTU, Belgavi: 1) “*Design and fabrication of pedal operated flour mill*” and 2) “*Manual push operated pesticides spraying machine*”.

3. A 6<sup>th</sup> semester students Rohit. A, Shreya Jennifer and Rithik Manju.P participated in State Level Student Project exhibition & Competition (SPEC2021) on July 2021 organized by B.I.T, Bengaluru in association with Indian Welding Society to display their project entitled “Design and development of Robotic Arm” . They were carrying out the work under the guidance of Mr. Mujeeb Pasha.
4. An eighth semester students Lakshmeesh. S. Reddy, Hrithik. K. S, Koodlappa Bevor and Joshi Sanket also participated in the same competition for their project entitled “Design and fabrication of Cassette ceiling air conditioner” under the guidance of Mr. Hemanth Kumar. P.

### Patent details

Ashok Kumar.C. N, Assistant Professor of the department is one of the inventors who has filled 3 patents. The details of the filed patents are as below:

- A lightweight mono frame chassis for e-skater scooter by natural fiber metal laminates with an application number of 20211041162 filed on 13<sup>th</sup> July 2021.
- Automatic signal alert for preventing accidents with an application number 202041054009 filed on 11<sup>th</sup> December 2020.
- Design and development of support less 3D printing system using FDM technology with an application number of 2021102375 filed on 6<sup>th</sup> May 2021.

### MoU's

To facilitate the students in internships, skill development, placement and consultancy services, departmental head has taken initiative to sign MoU's with industries. Memorandum of Understanding (MoU) was signed with Laghu Udyog Bharathi and with Peenya Industries Association on 9<sup>th</sup> and 16<sup>th</sup> February 2021.

### Research Publications

1. B. Aparna, *Buoyant Heat Transfer in a Porous Cavity of Trapezoidal Shape*, Int. J. of Science, Technology, Engineering and Management, Vol 2, No. 1, pp 41-49, 2020.
2. B. Aparna, *Fluid flow and Free Convective Heat Transfer in Porous Trapezoidal Cavity with Non-Uniform Heating*. and Management, UGC Care Journal Vol 40, Issue 40, pp 1572-1579, 2020.
3. Chetana.K.Y., *Prediction of axial load on variable graded composite tubes for crashworthy structure*, Materials Today: Proceedings ScienceDirect, pp 1673-1676.
4. Chetana.K.Y., *Effect of collapse trigger mechanism on the energy absorption capability of GFRP tube*, AIP Conference Proceedings, July 2020.
5. Mujeeb Pasha, Vijayasimha Reddy.B.G, *External Inversion of aluminium tubes under static and dynamic compression*, J.of Manufacturing Technology Today, Vol.20, No.56, pp 15-22, June 2021.
6. Mujeeb Pasha, Vijayasimha Reddy.B.G, T.Y.Reddy, *In Situ Calibration of a Load Cell During an Impact Test*, J. of Institution of Engineers Series C, Springer publication, 13<sup>th</sup> September 2021.