



## Our Patrons : Pimpri Chinchwad Education Trust

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## Samvaad Editorial : Recent Trends in Agro-Engineering

Life is dependent on energy and energy is an end product of what food and nutrition is consumed. The building blocks of life on earth are 'food resources' and 'water'. Human beings rely on various resources to fulfill the demand of food which is prime necessity for existence. The plant ecosystem constitutes the major part of food resources available for human beings on planet and the responsibility to satisfy the hunger of growing population is completely on the shoulders of "Farmers". It takes extraordinary efforts to grow food from the barren soil and in this process farmers face many challenges. Here comes the role of "Engineers – the problem solvers".

The accurate use of engineering techniques with skill and experience of the farmers, the agricultural production can be increased significantly both qualitatively and quantitatively. The stable agriculture industry ensures food security to the country. No nation can effectively groom with unstable agriculture economy that fails to fill the stomach of its citizens. The use of technologies in farming is determined by the competence of the various farmers towards coping with these advancements. The country's farmers who can utilize the modern technologies involved with farming can assure a good production of their products which benefits their country as a whole. Thus, agricultural engineering is the most important part in the agriculture sector in terms of productivity, time management, and crop management.

Agricultural engineering plays a very crucial role in the development of the agriculture sector. Farm machinery and power, irrigation drainage engineering, post-harvest engineering, soil and water conservation engineering, farm structure, electrical and other energy sources are the main aspects of agricultural engineering which increases productivity, utilizing the proper resources (that is soil, water). Due to proper management with the help of principles of engineering production, quality of crop increases drastically. Thereby increases the GDP of the agriculture sector in the country. Agricultural robots, or 'agbots', and robotic/driverless tractors used for everything from harvesting to irrigation. These robots can reduce the human effort tremendously thus ensuring increase in productivity. AI drive algorithms and apps can help farmers locate and track crops cycle, weather forecast and environmental changes, locate nearest soil testing centers, collect good quality seeds to harvest, pesticides, track their productivity according to market rates, etc. These apps can also be developed and used to check the health of the animals involved in agriculture.



Dr. Pravin R. Kale  
Dean, Student Development & Welfare

Primary medicines and nutrition required for animals can be provided along with access to veterinary doctors. This will be a boon to animal husbandry along with agriculture. Satellite imaging connected to apps can also provide a real farm images that can help farmers to keep a watch on their farms. These can also help in educating the rural farmers with crop information, pesticide control, more focus on organic farming, latest development on agriculture technologies and direct information from government about various subsidies, policies and laws developed especially for farmers.

Birds and other insects can cause a threat to full-grown crops. So a continuously alarming system helps the farmers to keep the birds away from the farms. Sensor technology can also be widely used in agriculture. Well-developed water, temperature, humidity sensors can be a boon to the farmers in monitoring the crops and fertility of soil. Block chain's capability of tracking ownership records and tamper-resistance can be used to solve urgent issues such as food fraud, safety recalls, supply chain inefficiency and food traceability in the current food system. Block chain's unique decentralized structure ensures verified products and practices to create a market for premium products with transparency. Modern greenhouses are becoming increasingly tech-heavy, using LED lights and automated control systems to perfectly tailor the growing environment. Successful greenhouse companies are scaling significantly and located their growing facilities near urban hubs to capitalize on the ever-increasing demand

for local food. Smart irrigation systems can be established as per the farmers' needs which can reduce the huge amount of water wastage.

Engineering should go hand in hand with agriculture without interfering with the traditional methods of agriculture to ensure we produce maximum authentic food. India is the agro-based developing nation with agriculture being the major contributor in the country's GDP. India has the largest cover of the agricultural sector and very less technology involved with it. Many farmers still practice traditional methods which do not produce enough returns. Thus, there is a never-ending demand for developing a low-cost potential solution for the problems of the agricultural sector as per the needs, especially of Indian farmers. More agro-engineering start-ups should be encouraged that can link engineering to agriculture. Engineering embodies knowledge as a veritable factor of production. With good engineering, more food can be produced on less land and with fewer laborers.

\*\*\* Team Samvaad \*\*\*

Editor-in-Chief : Dr. Govind N. Kulkarni

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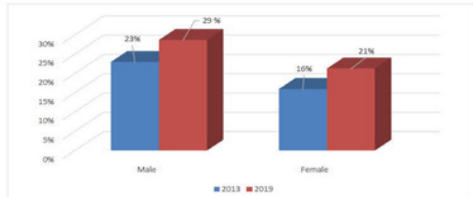
## Samvaad : Guest Column - Need for financial awareness among Women

**FINANCIAL LITERACY;** yes, we have heard of literacy rate in India or around the world. As we are reading this article, which explicitly means we are literate. But now, let's try to answer are we financially literate by answering three simple questions mentioned in the link (<https://qflec.org/wp-content/uploads/2015/04/3-Questions-Article2.pdf>). If you can answer all three questions correctly then you are financially literate. If not, don't worry, you are not the only one who lags financial literacy.

India has achieved only 27% of financial literacy in last 74 years of independence as per National Centre for Financial Education conducted in 2020.

Following Image illustrate the percentage of population crossing the minimum threshold score Gender Wise.

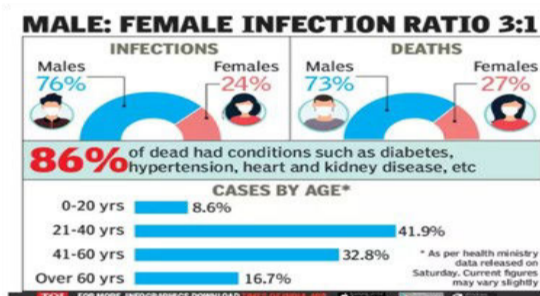
(Source: <https://m.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1156#CH1>). This shows that women have achieved financial literacy around 20%, which is 7% less than the India's average financial literacy rate. Secondly, as per another survey done by DSP Winvestor Pulse, among the 14% of the active population who invest their savings, only 33% of women take independent investment decisions compared to 64% men. Both the survey shows that women are less involved and less financial literate.



Why financial literacy should matter to women? Let's try to find the answer from two contrasts: current covid crisis and increased life expectancy. Both these are two contrasts, one talks about health crisis and associated deaths and other talks about improved healthcare facilities and high life expectancy.

**Covid Crisis:-** Covid-19 have brought harsh realities of lack of financial knowledge in front of every individual (Men/Women) irrespective of their financial status, demography, educational level, working/non-working women and within their family members. Data published by World Health Organization (WHO) total number of Covid-19 infection detected across India is approximate 33 Lacs and death around 4.3 Lacs till 31<sup>st</sup> Aug 2021. These are official numbers of deaths due to covid infection, however scientists & analysts are still debating and think that the actual numbers could be five times than these number.

Data provided by Indian health ministry and published by Times of India (Represented in this image) shows the infection and death are more in men than women with the Ratio of 3:1.

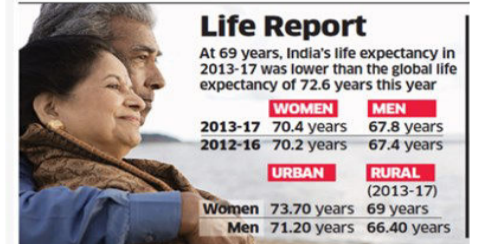


**Mr. Ravindra Nerpawar**  
Senior Project Manager  
L&T Infotech

Women had to take more responsibilities in this covid crisis in terms of taking healthcare decision and take complete responsibility of whole family. This crisis shows the importance of financial literacy among average India families and more importantly among females.

### Life Expectancy

According to WHO data women live longer than men on average by six to eight years across the developed countries. Life expectancy in India have also increased in India from 45 years to 69 years in last 75 years of Independence. Women are expected to live till 70.4 yrs and men for 67.8. "There is a difference of about 2.6 years" in female-male life expectancy at the national level as per report released by the Registrar General of India. (Represented in this image)



This higher life expectancy means that women will need a bigger financial reservoir than men to ensure their financial security and financial stability in their old age. Both, the above data from covid crisis and life expectancy shows the need for financial awareness among women.

**Few basic steps for improving financial literacy :-**

- Understanding your income from various avenues (Payslip/interest earned/ Pension Funds etc)
- Understanding taxation on all types of income earned
- Budgeting for your needs (Food, Clothing, Shelter, Education, etc) and delaying in gratification for wants (High-end Car, High-End Smart Phone, Exotic/International vacations etc).
- Managing risks through insurance covers (Life Insurance, Health Insurance, etc)
- Savings for emergencies funds /future needs like education of kids, kid's marriage, retirement etc
- Knowing/Sharing all your financial details of your family (Husband/Mother/Father), this can be helpful in any emergencies.
- Most importantly starting early in your life on saving/investing. evaluate of time and compounding in savings and investing.
- Understanding about the impact of inflation on your future monetary needs
- Reading books on financial literacy, saving and investments.

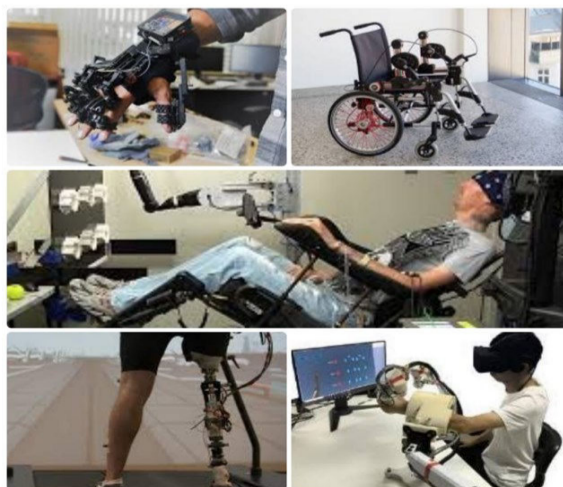
### Conclusion:-

It is important to be financially literate to achieve financial freedom and stability in life. No country /family can progress and prosper if most of the population is not financially literate and have no skill in money management. Financial literacy enhances individual's ability to ensure economic security for their families and self-respect.

## Samvaad Scientific Break Through: AI in Rehabilitation Engineering

Rehabilitation engineering is concerned with the development of technology solutions and technologies that assist individuals with disorders, as well as the rehabilitation of impaired individuals who have lost physical or cognitive capacities. These systems can be customized and created to address a variety of needs, including movement, communication, vision, hearing, and cognition. These gadgets or devices assist impaired individuals with daily living, educational, and employment tasks. Additionally, it features trendy brain-computer interfaces that enable a severely injured user to handle gazettes only by thinking about the task at hand.

Intelligent systems encompass a broad range of methodologies and technology advancements that will advance the subject of rehabilitation engineering research. The rapid advancement of technology in areas such as machine learning, deep learning, robotics, and virtual intelligence, among others, has a significant impact on Rehabilitation Engineering. AI is a capability in which machines learn to accomplish tasks independently of human input, rather than simply performing computations. Machine learning is an approach to artificial intelligence in which a computer program is built to analyze and forecast data given into the system. Deep Learning is a subset of machine learning that uses multiple layers of processing to create what is referred to



**Dr. Roshani Raut, Department of Information Technology**

as a deep neural network, which is capable of learning from massive volumes of complicated, unstructured data. AI is being used to improve medical care and biomedical research. It is used in Radiology, Imaging, Telehealth, and clinical care as well. Innovative procedures and techniques that can help people restore physical or cognitive functions are designed and developed through ongoing rehabilitation engineering research.

**Rehabilitation Robotics:** Robot rehabilitation is about any machine that is automatically performed to assist persons with physical disabilities in moving more freely. There are two basic types of rehabilitation robots available. The first type is an assisting robot that performs the functions of a lost limb. Manus ARM is one such example. It is a robotic arm fitted on a wheelchair that is operated using a chin switch or other input device. Powered wheelchairs are another type of teleoperated helpful robot. The second type

of rehabilitation robot is a therapy robot, sometimes known as a rehabilitator. Neuroscience research has proven that even after injury, the brain and backbone retain an exceptional capacity for adjustment via trained motions. Therapy robots are machines or instruments that enable patients to do robot-assisted practice motions. The first robot, MIT-Manus, assisted patients who were unable to reach across a tabletop on their own.

## PCCoE Achievements

PCET and all institutes under PCET received **ZEE 24 Taas** award as “**BEST Organization in Academics, Placements & Research**”, by Minister Rajeshi Tope.



- Information Technology Department & Civil Engineering Department applied for NBA accreditation on 6<sup>th</sup> August 2021.
- PCCoE is selected among 50 engineering colleges for **AICTE LITE Scheme**.

### 'मायबोली SIG'

“मायबोली” हा आपल्या महाविद्यालयाचा विशेष आवड गट (SIG) असून मराठी भाषेचे संवर्धन करणे तसेच भाषा वृद्धीगत करणे हा उद्देश आहे. "आपल्या सर्वांना अभिव्यक्ती साठी व्यासपीठ उपलब्ध करून देण्याचा आणि मराठमोळ्या संस्कृतीशी जोडून ठेवण्याचा." मायबोली चा उद्देश आहे.

हा ग्रुप मराठी भाषेच्या माध्यमातून अभिव्यक्ती वर भर देणार आहे. या ग्रुप च्या माध्यमातून आपल्या सर्वांना एक हक्काचे व्यासपीठ उपलब्ध होणार आहे. मराठीतून संवाद वाढवत नेत, आपल्या सर्वगुणसंपन्न भाषेचा वारसा आपण जपणार आहोत. कथा, कविता, वाचन कट्टा, लेखमालिका, व्यक्ती चित्रे, समीक्षा, विनोदी लेख, प्रवास वर्णन, ई. सर्व प्रकारात आपण या मायबोली मध्ये सहभाग नोंदवू शकता.

हे आणि असे बरेच उपक्रम 'मायबोली SIG' राबवणार आहे. आपण अजूनही मायबोली चे सदस्य झाले नसाल तर त्वरा करा, आणि खालील लिंक वर आपले सदस्यत्व नोंदवा सभासद नोंदणी लिंक- <http://maayboli.pccoepune.com>

## Faculty Achievements

1. Dr. Sonali D. Patil, invited for National level "Project Guidance Seminar for Kiran Scholars", organized by Persistent Systems Pune.
2. Dr. U.G. Potdar, Dr. C.L.Ladekar, Mr. N. Vivekanandan, Mr. A. S. Kashid, Mr. A.A. Panchwadkar, Mr. A.N. Kore, Dr. P.J. Tipole, Mr. S.B. Matekar, Mr. S. Salve, Mr. G. G. Momin, Mrs. V. Gaikhe, Mrs. V. Bhalerao, Dr. R.B. Patil, Mr. S.S. Shinde, Mr. G. D. Kale, Mr. U.I. Shaikh, Mrs. S.V. Patil, Mr. S.S. More, Mr. Amit Divekar, Mrs. R. Pimpalkar, Mr. J. D. Ganeshkar, Mr. N. J. Surwade Received PCCoE Darpan Fellowship along with cash incentives for upgradation and development for the period of 20<sup>th</sup> August 2021 to 19<sup>th</sup> August 2022.
3. Mrs. Chaitrali Sorte, Ms. Meera Thorat, Mr. Sachin Jadhav, Mrs. Rohini Pise, Mrs. Jaya Dewan, Mrs. Anuja Jadhav, Mrs. Babita Jane, Dr. Gulbakshee Dharmale received PCCoE Darpan Fellowship along with cash incentives for Informative and Insightful Faculty Website Development (duration-20 August 2021 to 19 August 2022)
4. Dr. Leena Sharma, Dr. Priya Joshi, Mr. D.A. Anarse, Dr. M.B.Kadam and Dr. Sandeep Patil of Dept of AS&H, received PCCoE Darpan Fellowship along with cash incentives for Informative and Insightful Faculty Website Development (duration-20 August 2021 to 19 August 2022)
5. Mrs. Puja Kate of Dept of AS&H, Presented a research paper entitled “ Early fault diagnosis in Electrical motors using AI technique” at the 3<sup>rd</sup> Annual International conference on Innovative engineering-intelligent system integration 2021 (ICISI 2021) held virtually at school of Engineering, ADYPU from 29-30 July 2021. The paper will be published in Scopus indexed journal.
6. Mr. Karan Khare, Lab. Assistant, PG Mechanical, PCCoE, completed his BE Mechanical from SPPU, in AY 20-21.

## Students Achievements

'Team Automatons'	Team has <b>won the 'Promising Performer'</b> award at national robotic contest ' <b>DD-ROBOCON 2021</b> ', jointly organized by Doordarshan and IIT Delhi in IIT Delhi on 18 <sup>th</sup> August 2021 in online mode. Prof. S. B. Matekar is faculty coordinator for Team Automatons.
Team Wastinno Shantanu Jagtap, Siddhi Jagtap Manisha Patil, Shruti Barde	Team received NES Innovation award 2021 Rank 3 with cash prize of Rs. 15000/- . Dr. Sanjay Lakade is faculty coordinator of Team Wastinno.
Team Kratos racing electric	Team received sponsorship of Rs. 1 Lac from Reckitt public limited company. Mr. Nilesh Gaikwad is faculty coordinator.
Mrudula Kulkarni, IT Department	Selected as UiPath Student Developer Champion

## PCCoE Technical Feats

- Mr. Nikhil More & Dr. Sanjay Lakade published research work on "Improvement in Wear and Friction Properties of Heat-Treated Steel Using Micro-grooved Patterns" in Advances in Industrial Machines and Mechanisms Springer Book.
- Dr. Rajkumar B. Patil delivered guest lecture on "System Reliability Modeling and Evaluation" at "German Jordanian University (GJU), Jordan" dtd. 31st August, 2021.
- Dr. Rajkumar B. Patil delivered guest lecture on "Reliability Engineering in 21st Century" at National level STTP on "Emerging Trends in Mechanical, Automation & Robotics" on August 23, 2021 organized by Dr. D. Y. Patil Institute of Technology, Pimpri, Pune
- Dr. C. L. Ladekar, Umesh Nandargi, Sakshi Shende, Urvesh Berry, Mansi Sankhpal & Bhushan Mohol filed patent based on LATROB university competition project topic "portable emission detector & inbuilt driving license storage device" on 09/08/2021.
- Amulya Maitre, Dr. K. Rajeswari, Sushma Vispute published research paper on "Time Series Analysis for Understanding the Vaccination Rate using ARIMA" in the International Journal of Engineering Research & Technology, Research Gate, Google Scholar; ISSN-. 2278-0181.
- Amruta Aher, Dr. Rajeswari Kannan and Mrs. Sushma Vispute published research paper on "Data Analysis and Price Prediction of Black Friday Sales using Machine Learning Techniques" in the International Journal of Engineering Research & Technology, Research Gate, Google Scholar; ISSN-. 2278-0181.
- Sayali R. Nipanikar, Dr. Rajeswari Kannan and Mrs. Sushma Vispute published research paper on "Bangalore Flat Price Prediction Using Machine Learning Techniques" in the GIS science journal, Scopus, UGC approved; ISSN: 1869-391; DOI:20.18001.GSJ.2021.V8I8.21.37810.
- Nupoor Shailendra Kangle, Dr. Rajeswari Kannan and Mrs. Sushma Vispute published a paper on "Application of Machine Learning Techniques For Fake Customer Review Detection" in GIS science journal, Scopus, UGC approved; ISSN: 1869-9391; DOI:20.18001.GSJ.2021.V8I8.21.37945
- Tejaswini Zope, Dr. Rajeswari Kannan and Mrs. Sushma Vispute published a paper on "Application of Different Machine Learning Techniques for Predicting Heart Disease" in the International Journal of Engineering Research & Technology, Research Gate, Google Scholar; ISSN-. 2278-0181.
- Anjali shirsagar and Mrs. S. R. Vispute published a research paper on "Early Detection of Sepsis Using Extra Tree Classifier" in the Journal of Huazhong University of Science and Technology, SCOPUS, UGC Approved; ISSN-1671-4512.
- Padmaja Sardal, Umesh Sangade, Kshitija Shinde and Mrs. Ashwini Shinde published the research paper on "Design and Implementation of Intelligent Treadmill with Fitness Tracker using Raspberry Pi and IOT" in 2nd International Conference on Computer Vision, High Performance Computing, Smart Devices and Networks(CHSN-2021), Dept. of Computer Science and Engineering, Jawaharlal Nehru Technological University Kakinada, Springer, during 20-21 August, 2021.
- Anjali A. Shejul, Dr. Kishor.S.Kinage and B. Eswara Reddy published the research journal paper on "Deep Appearance model and Crow-sine cosine algorithm-based Deep Belief Network for age estimation" in the International Journal of Ambient Computing and Intelligence (IJACI) during July-September 2021, Volume 12, Issue 3, page nos 185-208, 10.4018/IJACI.2021070109.
- Mrs. M. S Bhandarkar, Aniket Chande, Ayush Kumar Chaudhary, Govind Gurme published the research journal paper on "IoT Based Smart farming system" in the International Journal of Scientific Research & Engineering Trends during July-Aug-2021, Volume 7, Issue 4, page nos 2832-2837.
- Mrs. Archana Bhamare attended five days FDP ON "UNIVERSAL HUMAN VALUES" during 9 - 13 Aug 2021 in Online by Vishwakarma Institute of Information Technology, Pune.
- Mr. Prakash V. Sontakke attended two days workshop on "ML Using AWS" during 14th & 21st August 2021.
- Mrs. Swati Patil attended two weeks internship program on "Kalam Internship Program by TESLA" during 14th to 28th August 2021.
- Mr. Prakash V. Sontakke, Mrs. S. I. Shirke organized 5 days workshop on "Computer Networks-An insight" during 23/8/2021 to 27/8/2021.
- Dr. Varsha Harpale delivered a guest lecture on "Introduction to practical components of Industrial and Clinical Trials" at Shri Bhagwan College of Pharmacy, Aurangabad, on 14th Aug. 2021.
- Dr. Varsha Harpale delivered a guest lecture on "Design and Analysis of Experiments" at Shri Bhagwan College of Pharmacy, Aurangabad, on 18th Aug. 2021.
- Dr. Varsha Harpale delivered a guest lecture on "Statistics, Mathematical Modelling, Regression Analysis" during PhD Coursework for Engineering and Pharmacy at Babasaheb Ambedkar Marathwada University, Aurangabad, on 1st Aug. 2021
- Dr. S. T. Mali delivered an expert lecture on Anaerobic bioreactor landfill technology for green renewable energy generation from municipal solid waste at Guru Gobind Singh College of Engineering and Research Centre in FDP on Emerging trends in environmental Engineering in association with ISTE.
- Dr. A K Gaikwad and Dr. S B Thakare published a copyright on "Dispatching Schedule Optimizer for RMC plant", Copyright Diary No. 11133/2021-CO/SW Registration No.: SW-14638/2021, dated 10/08/2021.
- Mr. Arif Bagwan of Dept. of AS & H, published a book entitled "Numerical and Statistical Methods" through Techknowledge Publications. The book is written based on the SPPU syllabus (2019 course: Sem-V Mechanical and Automobile Engineering) and will be very much helpful for T. E. students.
- Total 8 copyrights are registered by IT students under the guidance of Faculty Mentors Dr. Rajesh Phursule, Jaya Dewan, Meera Thorat, Sarika Kadam, Sachin Jadhav. Topics were based on Artificial Intelligence, Machine Learning, Image Processing and Android Application development.
- Vaibhav Tiwari, Sudharm Kalamdani, Rohit Raut and Dr. Rajani P.K published the research conference paper on "Hygieia: Smart Health and Sanitizing Dispenser" in Sixth International Conference on ICT Sustainable Development (ICT4SD 2021), Springer, Indexed by SCOPUS, INSPEC, WTI Frankfurt eG, zbMATH, SCImago, Published by Global Knowledge Research Foundation, Goa, India during 5 - 6 August 2021.

## PCCoE Expressions



Artwork by Mr. Manoj Thorat,  
Dept. of E&TC Engineering

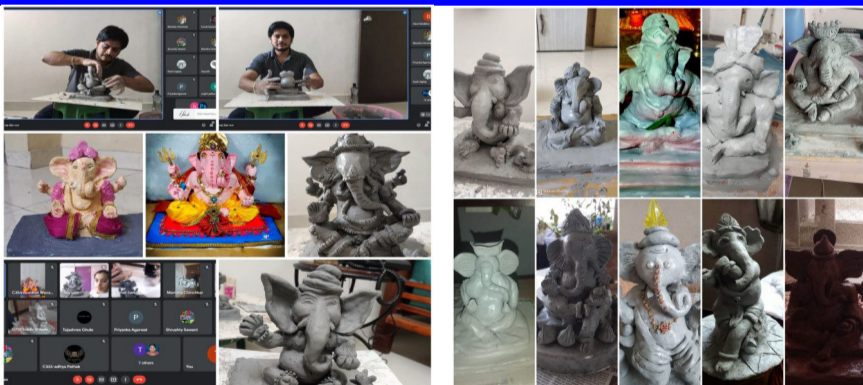


Rangoli by Mrs. Archana Bhamare,  
Dept. of E&TC Engineering



Artwork by Ms. Meera Thorat,  
Information Technology Department

## PCCOE Announcements



PCCoE Art Circle has always come up with creative and socially impactful events. With slogan Go green and keep our environment clean, Two days online workshop on Eco-friendly Ganesha Idol Making was successfully organized on 28th & 29th Aug. 2021 through Google Meet due to Covid 19 pandemic situation. Assistant Professor Shriyashi S. Shinde from Mechanical Department was expert for the workshop. 42 beautiful Ganesha idols were made with creativity using shadu clay. Everyone gained knowledge about making shadu ganesha idol, necessity of making shadu idols and responsibility of individual as a citizen towards environment. Everyone enjoyed and appreciated the workshop.



India freed itself from the shackles of British Empire which oppressed the nation for 200 years. The day of breaking free i.e. August 15, 1947 marked our independence. Ever since Indians have joined hands every year on this day to reminisce the sacrifices of the fighters and leaders who put the country above their own lives. Every year, the independence day is celebrated with grandeur, gaiety, fervour and enthusiasm in PCCOE. This year also PCCOE celebrated 75th Independence Day in the presence of our Guest of honor Dr. Manish Pardeshi.



It is our immense pleasure to announce the **6<sup>th</sup> International Conference on Computing, Communication, Control and Automation 'ICCUBEA-2022'**.