

# The Zenith

*September, 2021*  
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- Department of Electronics & Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research, Nashik have received recognition to start research center (PhD) by Savitribai Phule Pune University from Academic Year 2021-22.



## Scientists take snapshots of ultrafast switching in a quantum electronic device

Electronic circuits that compute and store information contain millions of tiny switches that control the flow of electric current. A deeper understanding of how these tiny switches work could help researchers push the frontiers of modern computing.

Now scientists have made the first snapshots of atoms moving inside one of those switches as it turns on and off. Among other things, they discovered a short-lived state within the switch that might someday be exploited for faster and more energy-efficient computing devices.

The research team from the Department of Energy's SLAC National Accelerator Laboratory, Stanford University, Hewlett Packard Labs, Penn State University and Purdue University described their work in a paper published in *Science* today.

"This research is a breakthrough in ultrafast technology and science," says SLAC scientist and collaborator Xijie Wang. "It marks the first time that researchers used ultrafast electron diffraction, which can detect tiny atomic movements in a material by scattering a powerful beam of electrons off a sample, to observe an electronic device as it operates."

### Capturing the cycle

For this experiment, the team custom-designed miniature electronic switches made of vanadium dioxide, a prototypical quantum material whose ability to change back and forth between insulating

and electrically conducting states near room temperature could be harnessed as a switch for future computing. The material also has applications in brain-inspired computing because of its ability to create electronic pulses that mimic the neural impulses fired in the human brain.

The researchers used electrical pulses to toggle these switches back and forth between the insulating and conducting states while taking snapshots that showed subtle changes in the arrangement of their atoms over billionths of a second. Those snapshots, taken with SLAC's ultrafast electron diffraction camera, MeV-UED, were strung together to create a molecular movie of the atomic motions.

"This ultrafast camera can actually look inside a material and take snapshots of how its atoms move in response to a sharp pulse of electrical excitation," said collaborator Aaron Lindenberg, an investigator with the Stanford Institute for Materials and Energy Sciences (SIMES) at SLAC and a professor in the Department of Materials Science and Engineering at Stanford University. "At the same time, it also measures how the electronic properties of that material change over time."

With this camera, the team discovered a new, intermediate state within the material. It is created when the material responds to an electric pulse by switching from the insulating to the conducting state.

"The insulating and conducting states have slightly different atomic arrangements, and it usually takes energy to go from one to the other," said SLAC scientist and collaborator Xiaozhe Shen. "But when the transition takes place through this intermediate state, the switch can take place without any changes to the atomic arrangement."

### **Opening a window on atomic motion**

Although the intermediate state exists for only a few millionths of a second, it is stabilized by defects in the material.

To follow up on this research, the team is investigating how to engineer these defects in materials to make this new state more stable and longer lasting. This will allow them to make devices in which electronic switching can occur without any atomic motion, which would operate faster and require less energy.

"The results demonstrate the robustness of the electrical switching over millions of cycles and identify possible limits to the switching speeds of such devices," said collaborator Shriram Ramanathan, a professor at Purdue. "The research provides invaluable data on microscopic phenomena that occur during device operations, which is crucial for designing circuit models in the future."

The research also offers a new way of synthesizing materials that do not exist under natural conditions, allowing scientists to observe them on ultrafast timescales and then potentially tune their properties.

"This method gives us a new way of watching devices as they function, opening a window to look at how the atoms move," said lead author and SIMES researcher Aditya Sood. "It is exciting to bring

together ideas from the traditionally distinct fields of electrical engineering and ultrafast science. Our approach will enable the creation of next-generation electronic devices that can meet the world's growing needs for data-intensive, intelligent computing."

*Source: DOE/SLAC National Accelerator Laboratory*  
[www.sciencedaily.com](http://www.sciencedaily.com)

## Expert Lecture/Seminars/Courses/Industrial Visits Organized

- Department of Electronics & Telecommunication Engineering in collaboration with IETE Nashik Sub-Center organizes Online Expert Talk on “Cyber Security” By Er.Venugopal Adep, Manager TIAA(Teachers, Insurance, and annuity Association of America), Ltd. On 3rd July Saturday 2021



K. K. Wagh Education Society's  
**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
Website: [www.engg.kkwagh.edu.in](http://www.engg.kkwagh.edu.in)  
Department of Electronics & Telecommunication Engineering  
in Collaboration with IETE

Organizes  
**Online Webinar on “Cyber Security”**  
by  
**Mr. Venugopal Adep**  
Manager TIAA  
(Teachers, Insurance, and Annuity Association of America)

On Zoom Platform  
Meeting ID: 969 2399 7384  
Passcode: beeltx

On 3<sup>rd</sup> July 2021 from 10.00 AM to 01.00 PM  
<https://zoom.us/j/96923997384?pwd=NjJwbnVnMDgrZUhnS1BBcEpJL3FiUT09>

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- Webinar was organized in collaboration with IETE Nashik Sub-Center on “Recent Trends in Cellular Communication” by Dr. M. H. Kori (PhD from IITB), Vice-President, IETE on 5th July 2021



K. K. Wagh Education Society's  
**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
Website: [www.engg.kkwagh.edu.in](http://www.engg.kkwagh.edu.in)  
Department of Electronics & Telecommunication Engineering  
in collaboration with IETE Nashik Sub-Center

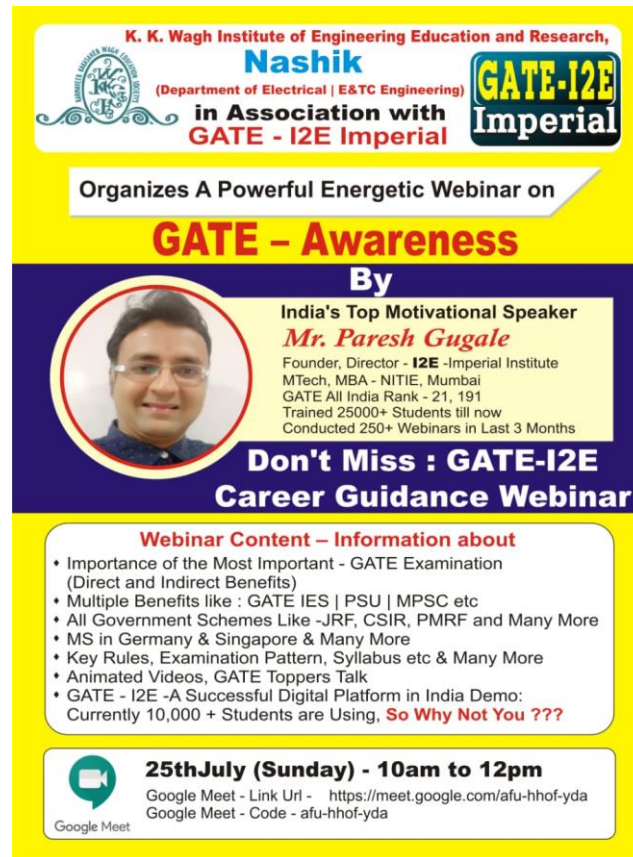
Organizes  
**Online Webinar on “Recent Trends in Cellular Communication”**  
**Dr. M.H.Kori**  
(PhD from IITB)  
Vice-President, IETE.

On 5<sup>th</sup> July 2021 from 11.00 AM to 01.00 PM  
Please register for Expert talk on Recent trends in Cellular Communication on July 5<sup>th</sup>, 2021 11:00 AM IST at:  
<https://attendee.gotowebinar.com/register/5223829637642210576>  
After registering, you will receive a confirmation email containing information about joining the webinar.

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- Webinar was organized in collaboration with GATE- I2E Imperial on “GATE- Awareness” by Mr. Paresh Gugale (Founder, Director GATE- I2E Imperial) on 25th July 2021



**K. K. Wagh Institute of Engineering Education and Research, Nashik**  
(Department of Electrical | E&TC Engineering)  
**in Association with GATE - I2E Imperial**

**Organizes A Powerful Energetic Webinar on**  
**GATE – Awareness**  
**By**

**India's Top Motivational Speaker**  
**Mr. Paresh Gugale**  
Founder, Director - **I2E** -Imperial Institute  
MTech, MBA - NITIE, Mumbai  
GATE All India Rank - 21, 191  
Trained 25000+ Students till now  
Conducted 250+ Webinars in Last 3 Months

**Don't Miss : GATE-I2E Career Guidance Webinar**

**Webinar Content – Information about**

- Importance of the Most Important - GATE Examination (Direct and Indirect Benefits)
- Multiple Benefits like : GATE IES | PSU | MPSC etc
- All Government Schemes Like -JRF, CSIR, PMRF and Many More
- MS in Germany & Singapore & Many More
- Key Rules, Examination Pattern, Syllabus etc & Many More
- Animated Videos, GATE Toppers Talk
- GATE - I2E -A Successful Digital Platform in India Demo: Currently 10,000 + Students are Using, **So Why Not You ???**

**25th July (Sunday) - 10am to 12pm**  
Google Meet - Link Uri - <https://meet.google.com/afu-hhof-yda>  
Google Meet - Code - afu-hhof-yda

- Webinar was organized by Training and placement cell, Department of Electronics and Telecommunication on “Guidance session for Final year students” by Mr. Hrishikesh Dhande, Academic Relationship Manager, TCS on 11th August 2021



**K. K. Wagh Education Society's**  
**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
Website: [www.engg.kkwagh.edu.in](http://www.engg.kkwagh.edu.in)

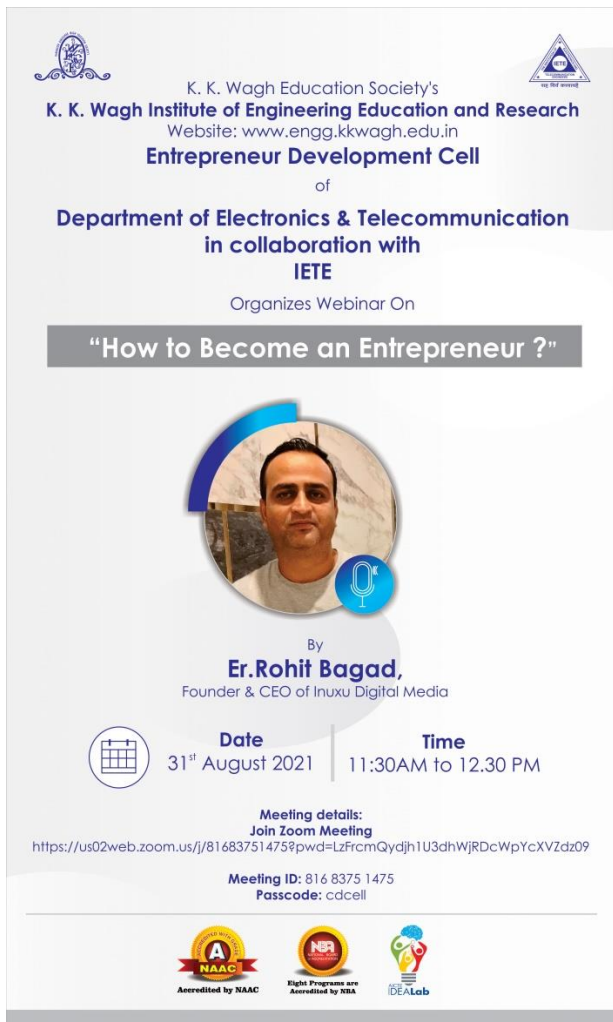
**Department of Electronics & Telecommunication Engineering**  
**Training and Placement Cell**

Organizes  
**“ Placement guidance for Final year students ”**  
by  
**Mr. Hrishikesh Dhande**  
Academic Relationship Manager, Tata Consultancy Services, Pune

**On Zoom Platform**  
Meeting ID: 836 0926 0815  
Passcode: tnp\_tcs

**On 11<sup>th</sup> August 2021 from 01:15 PM to 2.15 PM**  
<https://us02web.zoom.us/j/83609260815?pwd=cHhpUHBSVmtFakRTd2ppVTJDa3ZnQT09>

- Webinar was organized by Entrepreneurship Development Cell of Department of E&TC in collaboration with IETE Nashik Sub center on “How to Become an Entrepreneur?” by Er. Rohit Bagad, Founder & CEO, Inuxu Digital Media Technologies Pvt Ltd on 31st August 2021.



K. K. Wagh Education Society's  
**K. K. Wagh Institute of Engineering Education and Research**  
 Website: [www.engg.kkwagh.edu.in](http://www.engg.kkwagh.edu.in)  
**Entrepreneur Development Cell**  
 of  
**Department of Electronics & Telecommunication**  
 in collaboration with  
**IETE**  
 Organizes Webinar On

**“How to Become an Entrepreneur ?”**

By  
**Er. Rohit Bagad,**  
 Founder & CEO of Inuxu Digital Media

**Date** 31<sup>st</sup> August 2021 **Time** 11:30AM to 12.30 PM

**Meeting details:**  
 Join Zoom Meeting  
<https://us02web.zoom.us/j/81683751475?pwd=LzFrcmQydjh1U3dhWjRDeWpYcXVZdz09>  
**Meeting ID:** 816 8375 1475  
**Passcode:** cdcell

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- Webinar was organized by Department of E&TC in collaboration with IETE Nashik Sub center on “IoT Applications and Home / Industrial Automation Opportunities” by Er. Siddarth Kulkarni, Director Wizzo Smart Solutions Pvt,Ltd on 31st August 2021.



K. K. Wagh Education Society's  
**K. K. Wagh Institute of Engineering Education and Research**  
 Website: [www.engg.kkwagh.edu.in](http://www.engg.kkwagh.edu.in)  
**Department of Electronics & Telecommunication**  
 in collaboration with  
**IETE**  
 Organizes Webinar On

**“IoT Applications and Home/Industrial Automation Opportunities ”**

By  
**Er. Siddarth Kulkarni**  
 Director, Wizzo Smart Solutions Pvt. Ltd.

**Date** 31<sup>st</sup> August 2021 **Time** 10:15 AM to 11.15 AM

**Meeting details:**  
 Join Zoom Meeting  
<https://us02web.zoom.us/j/82987039878?pwd=NFJqemdlakh5MUxwVXY0VEJ1MFNrZz09>  
**Meeting ID:** 829 8703 9878  
**Passcode:** be2021

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## Industrial Training / Seminar/Workshop done by Staff

- Dr. K. S. Holkar has participated in Online ATAL AICTE FDP “Trends in Measurement and Control for System Automation Control Systems & Sensors Technology Engineering” organized by Birla Institute of Technology, Mesra from 26th June to 2nd July 2021



- Mrs. P. P. Patil has participated in one week FDP on “Emerging Research Trends in Communication” organized by E&TC Department, D.Y. Patil College of Engineering, Akurdi, Pune during 28th June to 02nd July 2021



- Mr. R. R. Khinde has participated in AICTE Quality Improvement Scheme (AQIS) sponsored one week online Short Term Training Program on “Innovative & Inventive Problem Solving” organized by Department of Production Engineering, AISSMS COE, Pune during 29th June to 04th July 2021





- Mr. A. A. Hadape, Mr. S. R. Gangurde, Mrs. R. M. Jadhav, Mrs. L. N. Chaudhari and Mr. K. R. Dhikale have attended two days online staff development program on “Towards Professional Development” on 1<sup>st</sup> and 2<sup>nd</sup> July 2021.



- Mrs. R. V. Chothe has participated in FDP on “Design Thinking for Societal Entrepreneurship” conducted by Shri Vithal Education and Research Institute College of Engineering Pandharpur under AICTE Training And Learning (ATAL) from 5th to 7th July 2021.



- Mr. P. J. Mondhe has participated in FDP on “Data Science: Applications and Research Directions” conducted by Atal Bihari Vajpayee University under AICTE Training And Learning (ATAL) from 5th to 7th July 2021.



- Dr. Kailas S. Holkar has successfully completed One Week Online National Level FDP on “Advances in SCADA & 5 G Technology” Organized by Electrical Engineering & Electronics and Telecommunication Departments of Loknete. Dr. Balasaheb Vikhe Patil, Pravara Rural Education Society's Sir Visvesvaraya Institute of Technology, Nashik from 5th July 2021 to 9th July 2021



PRAVARA TECHNICAL EDUCATION CAMPUS, NASHIK  
Loknete, Dr. Balasaheb Vikhe Patil  
(Padma Bhushan Awardee)  
Pravara Rural Education Society's  
Sir Visvesvaraya Institute of Technology, Nashik.



Department of Electrical Engineering  
&  
Electronics & Telecommunication Engineering  
Jointly Organized  
One Week Online National Level Faculty Development Programme  
(To help minimize the impact of the COVID-19 outbreak on Faculty.)  
July 5, 2021 to July 9, 2021.  
"Advances in SCADA & 5 G Technology"

## Certificate

This is to certify that, **Dr. Dr. Kailas S. Holkar** from **K.K.WAGH INSTITUTE OF ENGINEERING EDUCATION AND RESEARCH** has successfully completed One Week Online National Level FDP on "Advances in SCADA & 5 G Technology" with included a demonstration cum hands on exposure in Recent Technologies, Organized by Electrical Engineering & Electronics and Telecommunication Departments from 5th July 2021 to 9th July 2021 remotely at Loknete, Dr. Balasaheb Vikhe Patil (Padma Bhushan Awardee) Pravara Rural Education Society's Sir Visvesvaraya Institute of Technology, Nashik.

Mr. Prashant Bibave  
(FDP Coordinator)

Dr. M.K. Kumawat  
(FDP Coordinator)

Mrs. Archana Hatkar  
(HoD E&TC)

Mr. Nadeem B. Shaikh  
(HoD EE)

Prof. (Dr.) KTV Reddy  
(Principal)

- Mrs. M. P. Joshi has participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Secrets of Human Bioenergy fields & Subconscious mind" from 12th to 16th July 2021 at Sona College of Technology



- Mr. P. J. Mondhe has participated & completed successfully AICTE Training and Learning (ATAL) Academy Online Elementary FDP on "Deep Learning for Visual Computing" from 12th to 16th July 2021 at Sri Krishna College of Engineering and Technology.





- Mrs. K. Nirmalakumari has participated in AICTE Quality Improvement Scheme (AQIS) sponsored one week online Short Term Training Program on “Innovative & Inventive Problem Solving” organized by Department of Production Engineering, AISSMS COE, Pune during 13th to 18th July 2021.



- Mrs. M. P. Joshi and Mrs. D. C. Shimpi have attended participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Internet of Things an Emerging Technology in Electronics Industry" from 19<sup>th</sup> to 23<sup>rd</sup> July 2021 at Institute of Engineering and Technology, Devi Ahilya University, Indore.



- Dr. S. S. Morade has worked as Resource Person in Faculty Orientation Workshop on TE(E&TC) revised syllabus (2019C) under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22nd to 24th July 2021





## Faculty Orientation Workshop



On  
T. E. (E&TC/Electronics) Revised Syllabus 2019C.  
Subject: Microcontroller [304184]

Under aegis of Board of Studies (E&TC/Electronics), SPPU Pune

(July 22-24, 2021)

### E-Certificate of Participation..!

This is to certify that, **Dr. Sunil S. Morade** of **KK Wagh Institute of Engg. Education and Research, Nashik** has worked as **Resource Person** in Faculty Orientation Workshop on TE(E&TC) revised syllabus (2019C) under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22/07/2020 to 24/07/2020]

Dr. D. S. Mantri -  
Faculty Coordinator

Dr. D. D. Chaudhary  
HOD, E&TC, SIT

Dr. M. S. Gaikwad  
Principal, SIT Lonavala

Dr. D. S. Bormane  
Chairman BoS (E&TC)

Dr. M. G. Chaskar  
Dean Faculty of Sci. & Tech. SPPU

- Prof. Dr. D. M. Chandwadkar Dr. S. S. Morade and Mrs. M. P. Joshi have attended Faculty Orientation Workshop on “TE(E&TC) revised syllabus (2019C)- Microcontroller” under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22nd July to 24th July 2021



## Faculty Orientation Workshop

On  
T. E. (E&TC/Electronics) Revised Syllabus 2019C.  
Subject: Microcontroller [304184]

Under aegis of Board of Studies (E&TC/Electronics), SPPU Pune  
(July 22-24, 2021)

### E-Certificate of Participation..!

This is to certify that, **Dr. Dinesh M Chandwadkar** of **K K Wagh Institute of Engineering Education and Research Nashik** has attended Faculty Orientation Workshop on TE(E&TC) revised syllabus (2019C) under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22/07/2021 to 24/07/2021.

Dr. D. S. Mantri  
Faculty Coordinator

Dr. D. D. Chaudhary  
HOD, E&TC, SIT

Dr. M. S. Gaikwad  
Principal, SIT Lonavala

Dr. D. S. Bormane  
Chairman BoS (E&TC)

Dr. M. G. Chaskar  
Faculty of Sci. & Tech. SPPU

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## Faculty Orientation Workshop

On  
T. E. (E&TC/Electronics) Revised Syllabus 2019C.  
Subject: Microcontroller [304184]

Under aegis of Board of Studies (E&TC/Electronics), SPPU Pune  
(July 22-24, 2021)

### E-Certificate of Participation..!

This is to certify that, **Dr. Sunil Sudam Morade** of **K. K. Wagh Institute of Engg. Education and Research** has attended Faculty Orientation Workshop on TE(E&TC) revised syllabus (2019C) under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22/07/2021 to 24/07/2021.

Dr. D. S. Mantri  
Faculty Coordinator

Dr. D. D. Chaudhary  
HOD, E&TC, SIT

Dr. M. S. Gaikwad  
Principal, SIT Lonavala

Dr. D. S. Bormane  
Chairman BoS (E&TC)

Dr. M. G. Chaskar  
Faculty of Sci. & Tech. SPPU

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## Faculty Orientation Workshop

On  
T. E. (E&TC/Electronics) Revised Syllabus 2019C.  
Subject: Microcontroller [304184]

Under aegis of Board of Studies (E&TC/Electronics), SPPU Pune  
(July 22-24, 2021)

### E-Certificate of Participation..!

This is to certify that, **Mrs. Mayuri Parag Joshi** of **Kkwagh, IEER, Naahik** has attended Faculty Orientation Workshop on TE(E&TC) revised syllabus (2019C) under the aegis of Board of Studies (E&TC/Elex.), Savitribai Phule Pune University, organized by, Dept. of E&TC Engineering, STES, Sinhgad Institute of Technology, Lonavala from 22/07/2021 to 24/07/2021.

Dr. D. S. Mantri  
Faculty Coordinator

Dr. D. D. Chaudhary  
HOD, E&TC, SIT

Dr. M. S. Gaikwad  
Principal, SIT Lonavala

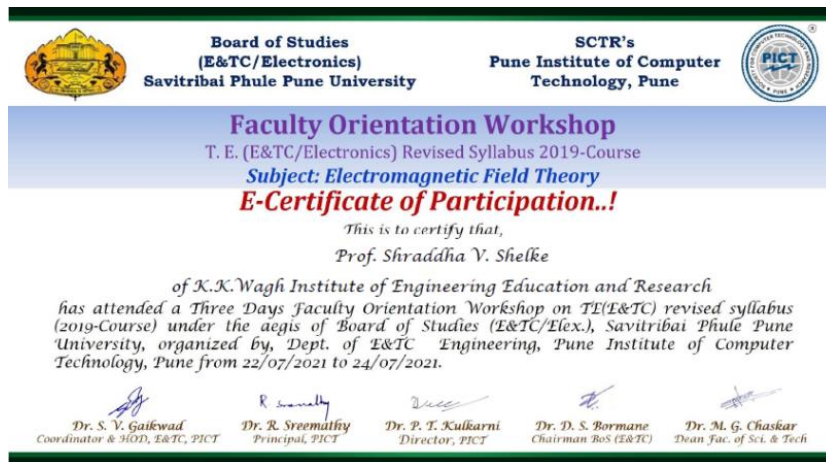
Dr. D. S. Bormane  
Chairman BoS (E&TC)

Dr. M. G. Chaskar  
Faculty of Sci. & Tech. SPPU

Certificate ID: UQSVMS-CE00138

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- Mrs. S. V. Shelke has participated in Three Days Online Faculty Orientation Workshop on TE (E&TC/Electronics) Revised Syllabus 2019 Course for the subject Electromagnetic Field Theory, organized by Department of E&TC Engg., Pune Institute of Computer Technology, Pune on 22nd to 24th July 2021.



- Mr. P. J. Mondhe has participated in Three Days Online Faculty Orientation Workshop on TE(E&TC/Electronics) Revised Syllabus 2019 Course for the Subject Database Management Organized by Department of E&TC Engg., Dr. D. Y. Patil Institute of Technology, Pimpri, Pune on 22nd to 24th July 2021.



- Dr. K. S. Holkar appointed as a reviewer for Int. J. of Business Intelligence and Data Mining published by Interscience from 24th July 2021.



- Dr. K. S. Holkar has participated in Faculty Orientation Workshop on TE (E&TC/Electronics) Revised Syllabus 2019 Course for the Subject Electronic Measurements organized by SPPU and Department of E&TC Engineering, Jayawantrao Sawant College of Engineering, Hadapsar, Pune on 26th to 28th July 2021.



- Dr. S. S. Morade has undergone Innovation Ambassador training (Foundation Level, Total 16 Sessions of 30 contact hours) conducted by MoE's Innovation Cell & AICTE during the period from 30th June - 30th July 2021 in online mode.



- Prof. Dr. D. M. Chandwadkar, Dr. S. A. Patil (Ugale), Mrs. S.V. Shelke and Mr. D. D. Khartad have attended the faculty orientation workshop on “TE E&TC revised syllabus (2019 C) Skill Development” under the aegis of Board of Studies (E&TC/ Electronics) Savitribai Phule Pune University, organized by Department of E&TC Engineering, Nutan Maharashtra Institute of Engineering & Technology, Talegaon Pune From 30th and 31st July 2021.

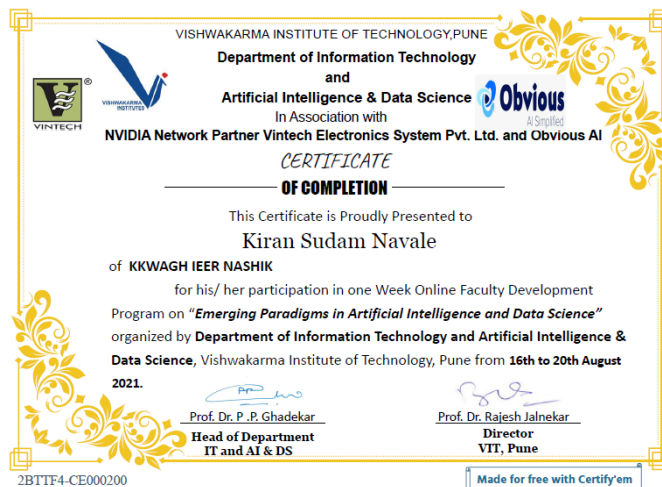


- Dr. S. S. Morade has participated & completed successfully AICTE Training and Learning (ATAL) Academy Online Elementary FDP on "Emotional Intelligence" from 2nd to 6th August 2021 at Government Engineering College Thrissur.



- Mr. K. S. Navale one Week Online Faculty Development Program on "Emerging Paradigms in Artificial Intelligence and Data Science" organized by Department of Information Technology and Artificial Intelligence & Data Science, Vishwakarma Institute of Technology, Pune from 16th to 20th August 2021.





- Mr. S. A. Zalte has participated and successfully completed the 5-day online FDP on the theme "Inculcating Universal Human Values in Technical Education" organized by All India Council for Technical Education(AICTE) from 9th August to 13th August, 2021.



## Placement

| Sr. No | Name                     | Company    | CTC      |
|--------|--------------------------|------------|----------|
| 1.     | Rushabh Surana           | Persistent | 4.71 LPA |
| 2.     | Aadesh Changdev Dhikale  | Persistent | 4.71 LPA |
| 3.     | Devyani Dhananjay Deore  | Persistent | 4.71 LPA |
| 4.     | Juzer B Patanwala        | Persistent | 4.71 LPA |
| 5.     | Ajay Wakodikar           | Persistent | 4.71 LPA |
| 6.     | Shreya Bari              | Persistent | 4.71 LPA |
| 7.     | Samiksha Sanjay Saindane | Persistent | 4.71 LPA |
| 8.     | Divya Ravi Lahire        | Persistent | 4.71 LPA |
| 9.     | Nikhil Gavankar          | Persistent | 4.71 LPA |
| 10.    | Tejas Chandrakant Kukade | Persistent | 4.71 LPA |
| 11.    | Shubham Balkrishna Ahire | Persistent | 4.71 LPA |
| 12.    | Shweta Waghulde          | Persistent | 4.71 LPA |

**Title:** Implementation of an Efficient SMD Component Counter using LASER Sensor

**Author:** Divya Gupta , Shreyani Jawade, Pooja Hiremath, Prof. Dr. Dinesh Chandwadkar, Dr. Sunita Patil (Ugale)

**Institute:** K. K. Wagh Institute of Engineering Education and Research, Nashik - 422003

**Name of Journal:** International Journal for Research in Applied Science & Engineering Technology (IJRASET)

### Abstract:

*Bulk parts such as RC components, SMD components, packaged in reel type, are plenty of use in the SMT factory application. When the SMD reel arrives, it is not possible to count all the SMD components and verify if a dealer has given the right number of required components. If the components delivered are less than required components then it may hamper the production line, pick and place robots and consume the deadline time which can lead to damage to the company's time and money. To overcome this problem the precise counting device is required to build. Which will count the SMD component and display the number of present and missing components. Also, which will do the given task in a minimum amount of time? The compact model is required for the industrial application which will save space and transportation cost. This project mainly focuses on counting and detecting missing SMD components from the reel and the outcome of counts and missing components will be displayed to the operator. It makes a perfect tape assessment stage not withstanding its tallying capacity.*

**Keywords:** SMD Components, SMD Resistor, LASER sensor, Surface Mount Technology, Surface Mount Device, SMD Counter





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***Education & Research, Nashik***

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***Amrutdham, Panchavati***  
***Nashik-422003***

***Editor: Mr. Dipankar D. Khartad***

***E-mail: ddkhartad@kkwagh.edu.in***

## **Vision**

Provide quality education to create engineering professionals of global standards by keeping pace with rapidly changing technologies to serve the society.

## **Mission**

M1: To educate the students with the state-of-the-art technologies and value based education to meet the growing challenges of industry.

M2: To provide scholarly ambience & environment for creating competent professionals.

M3: To inculcate awareness towards societal needs.