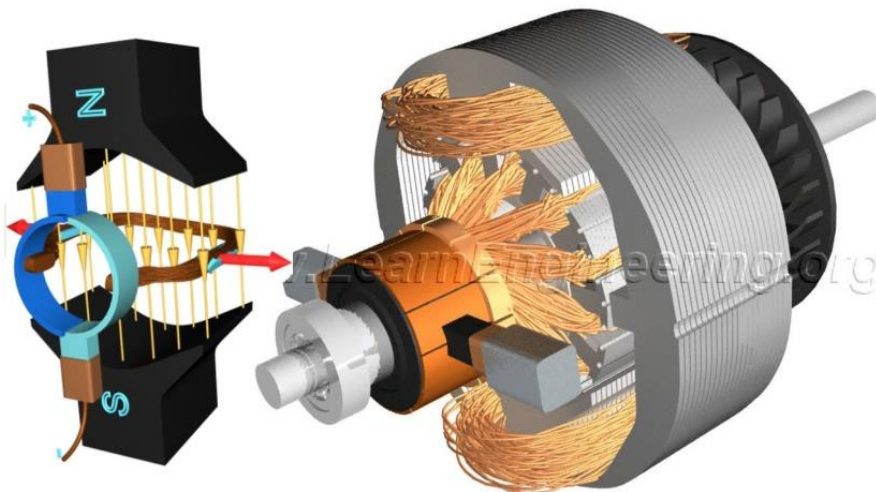


The Zenith

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'Drawn-on-skin' electronics offer breakthrough in wearable monitors

A team of researchers led by Cunjiang Yu, Bill D. Cook Associate Professor of Mechanical Engineering at the University of Houston, has developed a new form of electronics known as "drawn-on-skin electronics," allowing multifunctional sensors and circuits to be drawn on the skin with an ink pen.

The advance, the researchers report in *Nature Communications*, allows for the collection of more precise, motion artifact-free health data, solving the long-standing problem of collecting precise biological data through a wearable device when the subject is in motion. The imprecision may not be important when your FitBit registers 4,000 steps instead of 4,200, but sensors designed to check heart function, temperature and other physical signals must be accurate if they are to be used for diagnostics and treatment.

The drawn-on-skin electronics are able to seamlessly collect data, regardless of the wearer's movements. They also offer other advantages, including simple fabrication techniques that don't require dedicated equipment.

"It is applied like you would use a pen to write on a piece of paper," said Yu. "We prepare several electronic materials and then use pens to dispense them. Coming out, it is liquid. But like ink on paper, it dries very quickly. Wearable bioelectronics -- in the form of soft, flexible patches attached to the skin -- have become an important way to monitor, prevent and treat illness and injury by tracking physiological information from the wearer. But even the most flexible wearables are limited by motion artifacts, or the difficulty that arises in collecting data when the sensor doesn't move precisely with the skin. The drawn-on-skin electronics can be customized to collect different types of information, and Yu said it is expected to be especially useful in situations where it's not possible to access sophisticated equipment, including on a battleground.

The electronics are able to track muscle signals, heart rate, temperature and skin hydration, among other physical data, he said. The researchers also reported that the drawn-on-skin electronics have demonstrated the ability to accelerate healing of wounds.

In addition to Yu, researchers involved in the project include Faheem Ershad, Anish Thukral, Phillip Comeaux, Yuntao Lu, Hyunseok Shim, Kyoseung Sim, Nam-In Kim, Zhoulyu Rao, Ross Guevara, Luis Contreras, Fengjiao Pan, Yongcao Zhang, Ying-Shi Guan, Pinyi Yang, Xu Wang and Peng Wang, all from the University of Houston, and Jiping Yue and Xiaoyang Wu from the University of Chicago.

The drawn-on-skin electronics are actually comprised of three inks, serving as a conductor, semiconductor and dielectric. "Electronic inks, including conductors, semiconductors, and dielectrics, are drawn on-demand in a freeform manner to develop devices, such as transistors, strain sensors, temperature sensors, heaters, skin hydration sensors, and electrophysiological sensors," the researchers wrote.

Source: University of Houston
www.sciencedaily.com

New fabrication method brings single-crystal perovskite devices closer to viability

Nanoengineers at UC San Diego developed a new method to fabricate perovskites as single-crystal thin films, which are more efficient for use in solar cells and optical devices than the current state-of-the-art polycrystalline forms of the material.

Their fabrication method -- which uses standard semiconductor fabrication processes -- results in flexible single-crystal perovskite films with controlled area, thickness, and composition. These single-crystal films showed fewer defects, greater efficiency, and enhanced stability than their polycrystalline counterparts, which could lead to the use of perovskites in solar cells, LEDs, and photodetectors.

Researchers in Professor Sheng Xu's Jacobs School of Engineering nanoengineering lab published their findings on July 29 in Nature.

"Our goal was to overcome the challenges in realizing single-crystal perovskite devices," said Yusheng Lei, a nanoengineering graduate student and first author of the paper. "Our method is the first that can precisely control the growth and fabrication of single-crystal devices with high efficiency. The method doesn't require fancy equipment or techniques -- the whole process is based on traditional semiconductor fabrication, further indicating its compatibility with existing industrial procedures."

Perovskites are a class of semiconductor materials with a specific crystalline structure that demonstrate intriguing electronic and optoelectronic properties, which make perovskites appealing for use in devices that channel, detect, or are controlled by light -- solar cells, optical fiber for communication, or LED-based devices, for example.

"Currently, almost all perovskite fabrication approaches are focused on polycrystalline structures since they're easier to produce, though their properties and stability are less outstanding than single-crystal structures," said Yimu Chen, a nanoengineering graduate student and co-first author of the paper. Controlling the form and composition of single-crystal perovskites during fabrication has been difficult. The method invented in Xu's lab was able to overcome this roadblock by taking advantage of existing semiconductor fabrication processes including lithography.

"Modern electronics such as your cell phone, computers, and satellites are based on single-crystal thin films of materials such as silicon, gallium nitride, and gallium arsenide," said Xu. "Single crystals have less defects, and therefore better electronic transport performance, than polycrystals. These materials have to be in thin films for integration with other components of the device, and that integration process should be scalable, low cost, and ideally compatible with the existing industrial standards. That had been a challenge with perovskites."

In 2018, Xu's team was the first to successfully integrate perovskites into the industrial standard lithography process; a challenge, since lithography involves water, which perovskites are sensitive to. They got around this issue by adding a polymer protection layer to the perovskites followed by dry etching of the protection layer during fabrication. In this new research, the engineers developed a way to control the growth of the perovskites at the single crystal level by designing a lithography mask pattern that allows control in both lateral and vertical dimensions.

In their fabrication process, the researchers use lithography to etch a mask pattern on a substrate of hybrid perovskite bulk crystal. The design of the mask provides a visible process to control the growth of the ultra-thin crystal film formation. This single-crystal layer is then peeled off the bulk crystal substrate, and transferred to an arbitrary substrate while maintaining its form and adhesion to the substrate. A lead-tin mixture with gradually changing composition is applied to the growth solution, creating a continuously graded electronic bandgap of the single-crystal thin film.

The perovskite resides at the neutral mechanical plane sandwiched between two layers of materials, allowing the thin film to bend. This flexibility allows the single-crystal film to be incorporated into high-efficient flexible thin film solar cells, and into wearable devices, contributing toward the goal of battery-free wireless control.

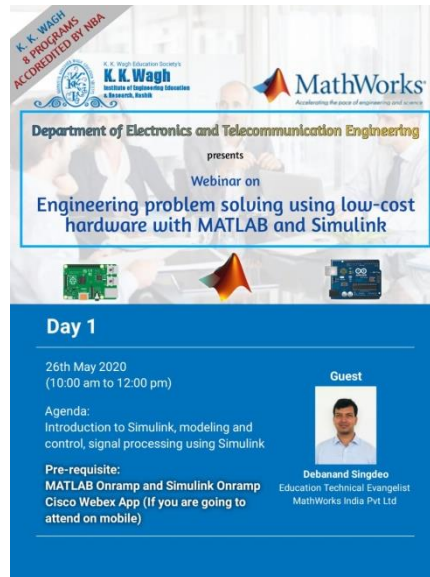
Their method allows researchers to fabricate single-crystal thin films up to 5.5 cm by 5.5 cm squares, while having control over the thickness of the single-crystal perovskite -- ranging from 600 nanometers to 100 microns -- as well as the composition gradient in the thickness direction.

"Further simplifying the fabrication process and improving the transfer yield are urgent issues we're working on," said Xu. "Alternatively, if we can replace the pattern mask with functional carrier transport layers to avoid the transfer step, the whole fabrication yield can be largely improved."

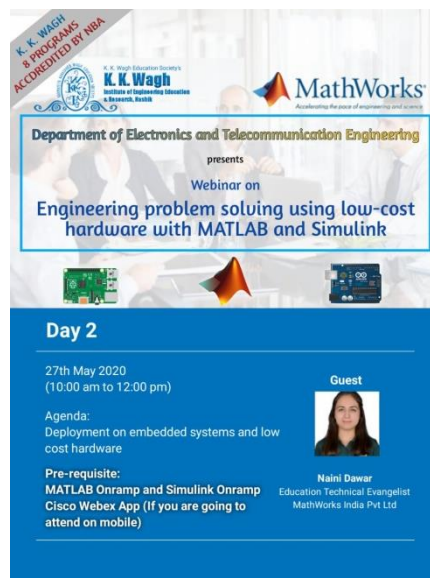
Instead of working to find chemical agents to stabilize the use of polycrystalline perovskites, this study demonstrates that it's possible to make stable and efficient single-crystal devices using standard nanofabrication procedures and materials. Xu's team hopes to further scale this method to realize the commercial potential of perovskites.

Expert Lecture/Seminars/Courses/Industrial Visits Organized

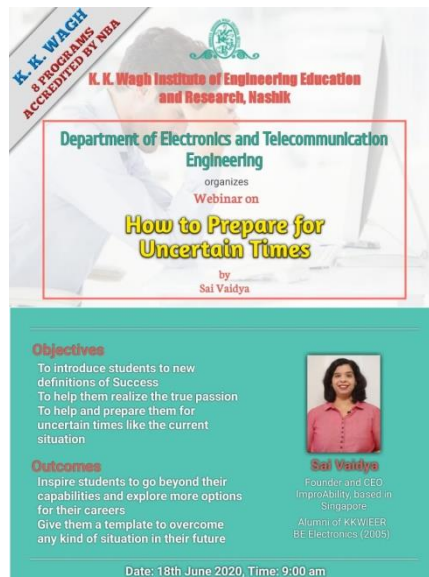
- A webinar was conducted for SE, TE and BE on “MATLAB Tutorial” on 25th May 2020 by Mr. K. S. Navale and Mr. D. D. Khartad, Assistant Professor, E&TC Department, KKWIEER, Nashik.
- A webinar was conducted on “Introduction to Simulink, Modelling & Control, and Signal Processing using Simulink” on 26th May 2020 by Mr. Debanand Singdeo, Education Technical Evangelist, Mathworks India Pvt. Ltd for students and staff.



- A webinar was conducted on “Deployment on Embedded System and Low-Cost Hardware” on 27th May 2020 by Mrs. Naini Dawar, Education Technical Evangelist, Mathworks India Pvt. Ltd for students and staff.



- A webinar was conducted on “How to prepare for uncertain times” for students on 18th June 2020 by Mrs. Sai Vaidya, Founder and CEO ImproAbility based in Singapore.



- A webinar was conducted on “Decoding Telecom” for students on 19th June 2020 by Mr. Sunmeel Bhumkar, Project Manager Wireless, Cisco System, INC, USA.



- A webinar was conducted on “Automotive Infotainment” for students on 20th June 2020 by Mr. Akshay R. Bhaurkar, Technical Lead at Harman Connected Services



- A webinar was conducted on “Start-up Opportunity in Various Sectors” for students on 21st June 2020 by Mr. Rohit Bagad, Founder and CEO, Inuxu Digital Media Technologies.



- A webinar was conducted on “Introduction to Cloud Computing using AWS” for students on 22nd June 2020 by Mr. Mukesh Badgujar (Technical Lead at ply inc., Founder & CEO FLY high consulting).



Industrial Training / Seminar/Workshop done by Staff

- Prof. Dr. M. R. Admane (Satone) was the resource person in the expert session on “Introduction to MSP430 Series Platforms: Scope, Application And Tools in Embedded ecosystem Programming MSP430 using CCS” on 2nd May 2020 at KBTCOE, Nashik
- Prof. Dr. D. M. Chandwadkar has completed a course on " What senior management of Tier-II engineering college need to know of NBA Accreditation?" on 15th May 2020



- Mr. N. M. Bhujbal has participated in Global online Proficiency Improvement Programme (oPIP) on “Vehicle Dynamics & Control with MATLAB” on 12th May 2020 to 17th May 2020.



- Mrs. S. D. Patil has participated in Faculty Development Program on Linux” with course material provided by the Talk To A Teacher project at IIT Bombay on 20th May 2020



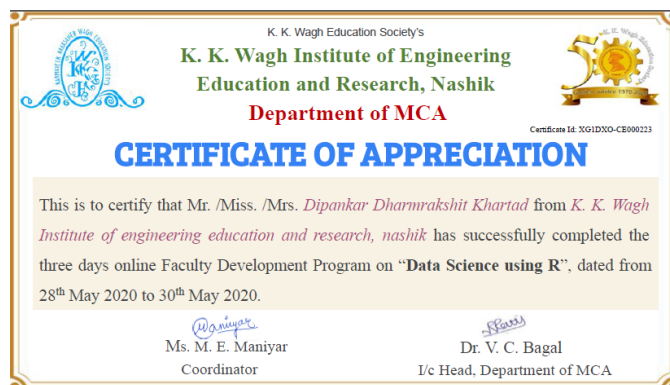
- Mrs. P. P. Patil has participated in FDP on “Recent Trends in Technology & Digital Education” on 27th May 2020 to 29th May 2020.



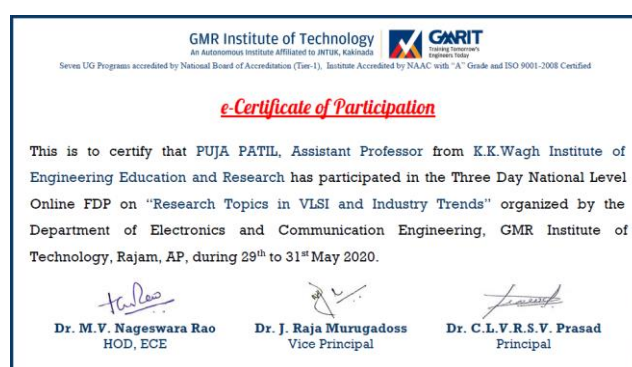
- Prof. Dr. D. M. Chandwadkar and Dr. S. A. Patil (Ugale) have participated in Faculty Development Program on “Innovation, Entrepreneurship and its Relevance in Industry 4.0 Practices in the Post Covid-19 Situation” on 25th May 2020 to 29th May 2020



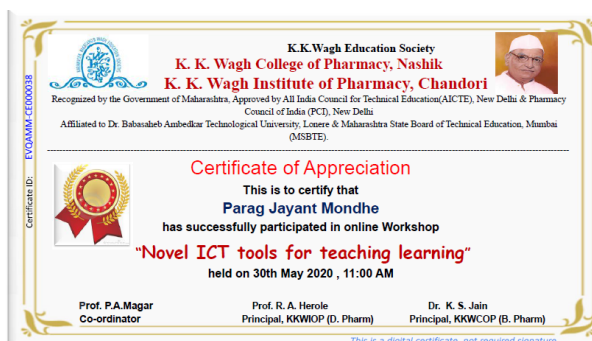
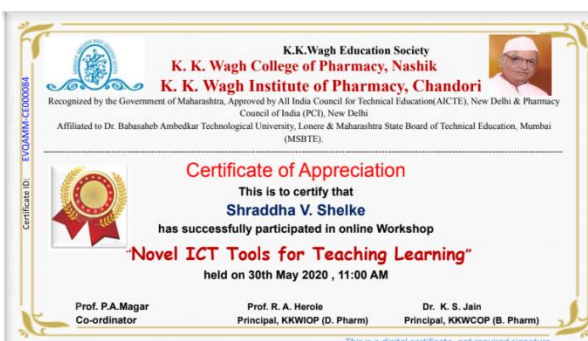
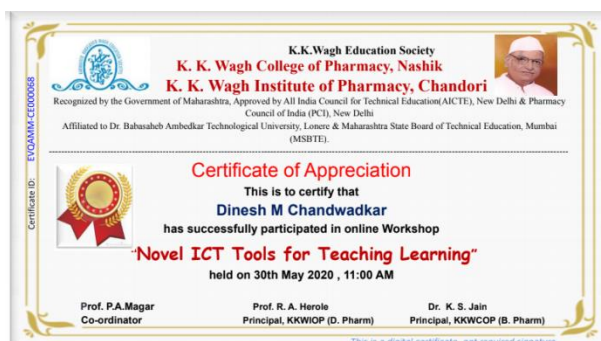
- Mr. D. D. Khartad has participated in Faculty Development Program on “Data Science using R” on 25th May 2020 to 30th May 2020.



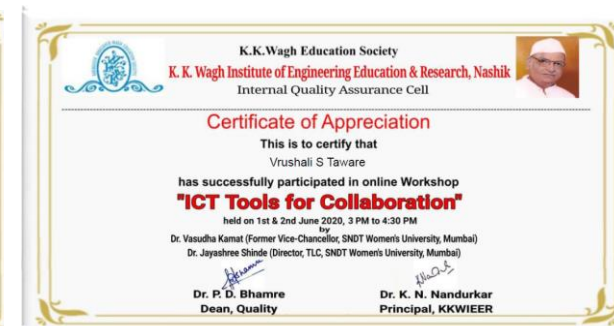
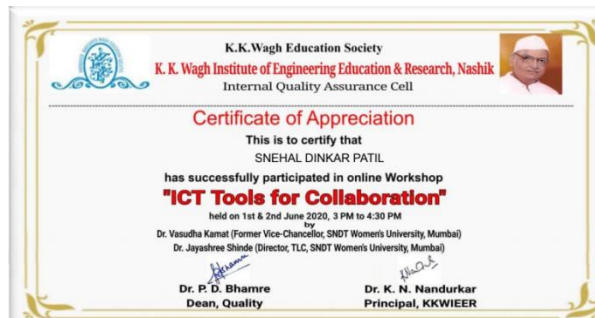
- Mrs. K. Nirmalakumari and Mrs. P. P. Patil have participated in National Level Online FDP on “Research Topics in VLSI and Industry Trends” on 29th May 2020 to 31st May 2020.



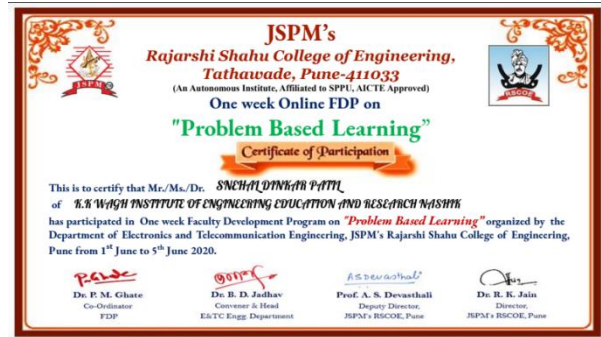
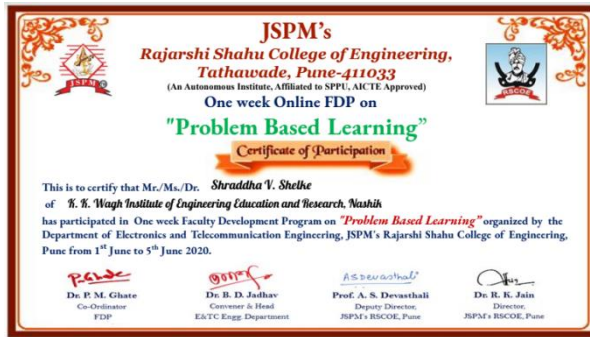
- Prof. Dr. D. M. Chandwadkar, Mr. P. J. Mondhe and Mrs. S. V. Shelke have participated in Faculty Development Program on “Novel ICT Tools for teaching Learning” on 30th May 2020



- Prof. Dr. D. M. Chandwadkar, Dr. K. S. Holkar, Mr. R. R. Khinde, Mrs. S. V. Shelke and Mrs. S. D. Patil, Mr. S. S. Dongare have participated in workshop on " ICT Tools for Collaboration" on 1st June 2020 to 2nd June 2020



- Mrs. S. V. Shelke and Mrs. S. D. Patil have participated in Faculty Development Program on “Problem Based Learning” on 5th June 2020



- Prof. Dr. D. M. Chandwadkar has participated in Faculty Development Program on “Creative Interacting e-Learning Content” on 18th June 2020 to 20th June 2020



- Prof. Dr. D. M. Chandwadkar, Dr. S. A. Patil and Mrs. S. V. Shelke were the resource person in Faculty Orientation workshop on Digital Electronics (E&TC/Electronics) revised syllabus under aegis of Board of Studies, SPPU on 22nd June 2020 to 26th June 2020.



- Prof. Dr. D. M. Chandwadkar, Dr. S. A. Patil (Ugale), Mrs. S. D. Patil and Ms. J. R. Shinde was the resource person in participated in Faculty Orientation Workshop on “Electrical Circuits” (E&TC/Electronics) revised syllabus under aegis of Board of Studies,SPPU on 22nd June 2020 to 26th June 2020



- Prof. Dr. D. M. Chandwadkar, Dr. S. A. Patil, Mrs. D. C. Shimpi, Ms. J. R. Shinde, Mr. K. R. Dhikale, Mr. K. S. Navale, Mr. P. J. Mondhe, Mrs. P. P. Patil, Mrs. R. V. Chothe, Mr. S. A. Zalte, Mrs. S. D. Patil, Mrs. V. S. Taware and Mr. D. D. Khartad have participated in Faculty Orientation Workshop on “Electrical Circuits” on 22nd June 2020 to 26th June 2020





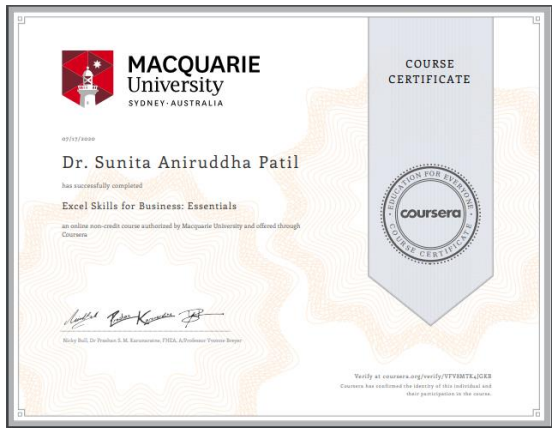
- Mr. R. R. Khinde and Mrs. S. V. Shelke have participated in Faculty Orientation Workshop on “Digital Circuits” on 22nd June 2020 to 26th June 2020.

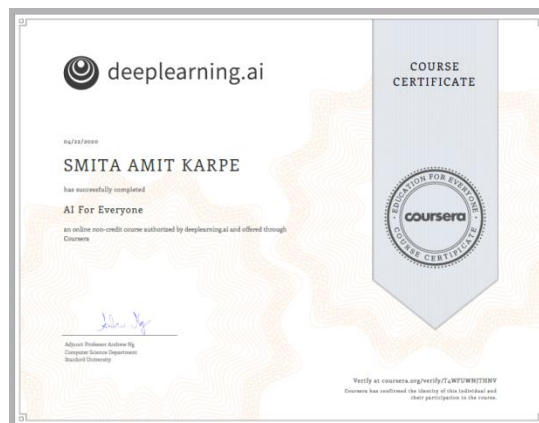
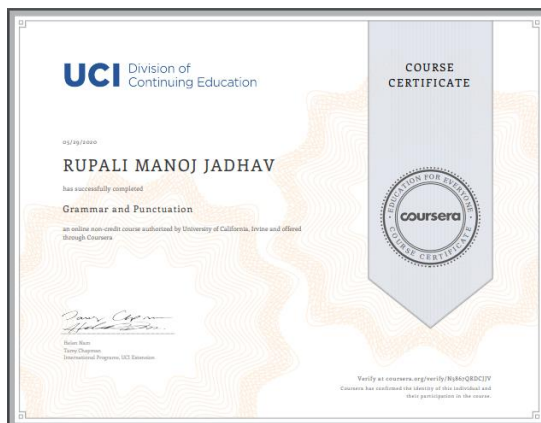
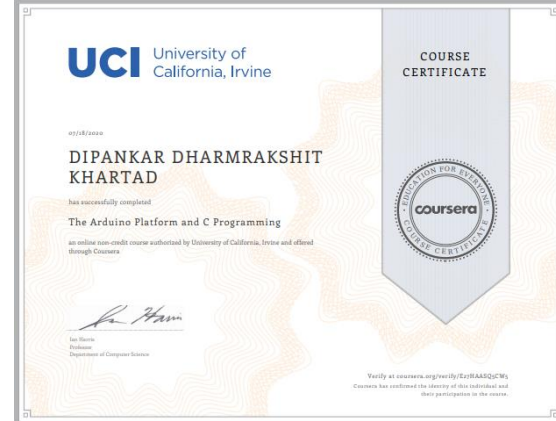


- Mr. P. J. Mondhe and Mrs. A. H. Dhangare have participated in Faculty Orientation Workshop on “Electronic Skill Development (ESD) Lab” on 23rd June 2020 to 26th June 2020.



Coursera Certification by Staff





- Staff has completed various courses on coursera.

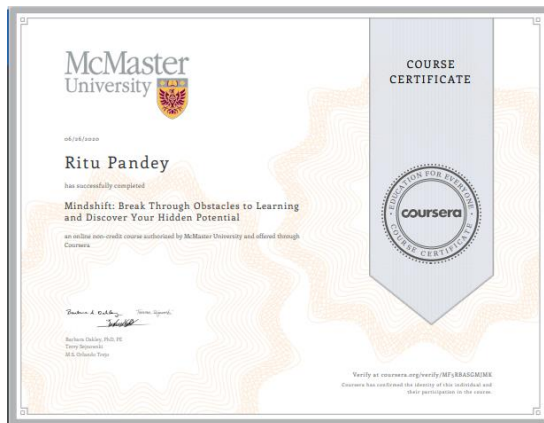
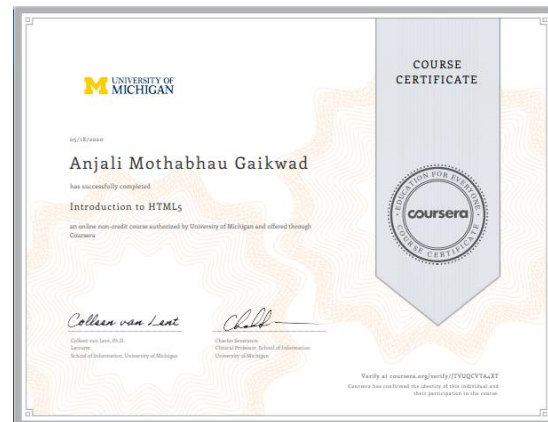
E &TC		
Sr. No	Name of Staff	Course Name
1.	Prof. Dr. D. M. Chandwadkar	Programming for everybody (getting started with Python)
2.	S. P. Munot	Linear circuits1-DC circuit
3.		Introduction To Basic Electronics
4.	Dr. S. A. Patil	Excel skills for Business Specialization
5.	V. R. Lele	Introduction to Personal Branding
6.	D. C. Shimpi	Digital Manufacturing & Design
7.	S. A. Karpe	Machine Learning for All
8.	S. V. Shelke	Write Professional Emails in English
9.	S. D. Patil	Python Data Structures
10.		Using Databases with Python
11.		Capstone: Retrieving, Processing, and Visualizing Data with Python
12.		My Specialization: Python for Everybody
13.		My Specialization: Excel Skills for Business
14.		Using Python to access web data
15.	P. J. Mondhe	Neural Networks and Deep Learning
16.		Neural Network from Scratch in TensorFlow
17.		Introduction to Project Management

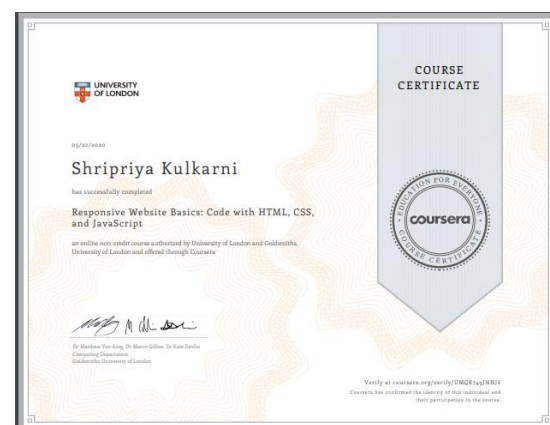
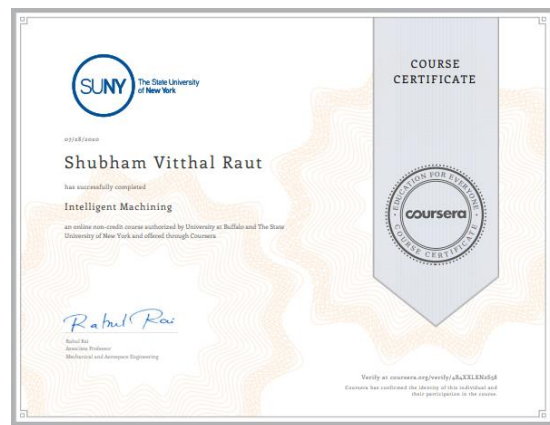
Electronics		
Sr. No	Name of Staff	Course Name
1.	Dr. K. S. Holkar	Sensors and Sensor Circuit Design
2.	R. R. Khinde	Blended learning Language practices for Teacher
3.	K. Nirmalakumari	Internet of Things: How did we get here?
4.		Hardware Description Languages for FPGA Design
5.		Introduction to FPGA Design for Embedded Systems
6.		Digital Systems: From Logic Gates to Processors
7.		Internet of Things: Communication Technologies
8.	P. P. Patil	Python Data structures
9.		An introduction to internet of things and embedded systems
10.	D. D. Khartad	Introduction to the Internet of Things and Embedded Systems
11.		The Arduino Platform and C Programming
12.		Interfacing with the Arduino

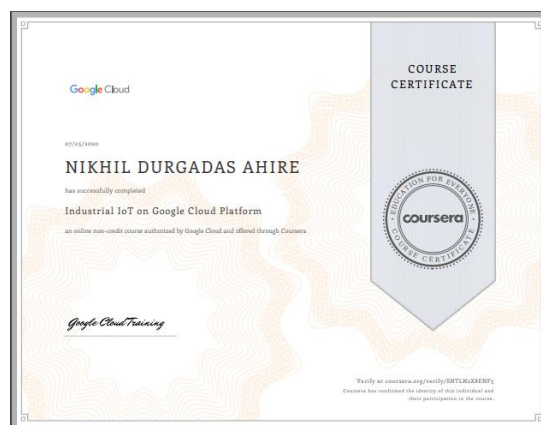
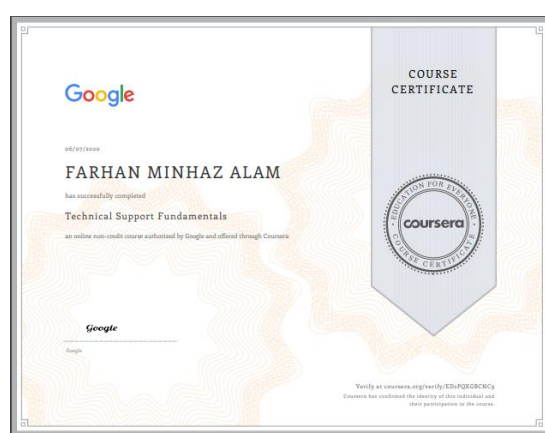
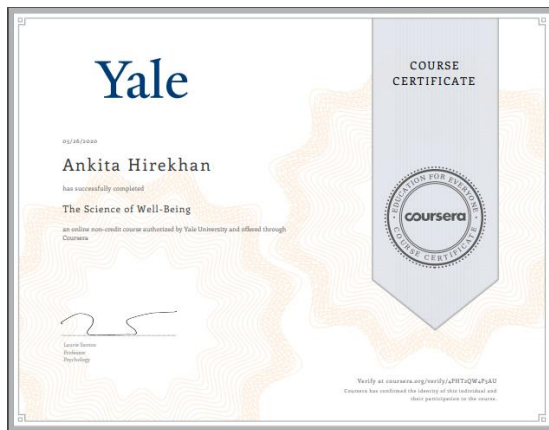
Supporting Staff		
Sr. No	Name of Staff	Course Name
1.	S. R. Gangurde	Take Your English Communication Skills to the Next Level
2.	R. M. Jadhav	Take Your English Communication Skills to the Next Level
3.		Grammar and Punctuation
4.	L. N. Chaudhari	Take your english communication skills to next level
5.	S. S. Khaire	Take Your English Communication Skills to the Next Level
6.	K. R. Dhikale	Take Your English Communication Skills to the Next Level

7.		Python Data Structures
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Coursera Certification by Students







- Students have completed various courses on coursera.

SE Electronics		
Sr. No.	Name	Course Name
1.	Atal Sanskruti Laximant	Programming For Everybody (Getting Started With Python)
2.		Programming Fundamentals
3.	Chaudhari Himanshu Bhaurao	Programming for Everybody (Getting Started with Python)
4.		Programming Fundamentals
5.	Deshmukh Chaitanya Chakradhar	Programming for Everybody (Getting Started with Python)
6.	Durgude Prathamesh Sunil	Programming for Everybody (Getting Started with Python)
7.	Malode Shruti Sunil	Python Data Structures
8.	Minase Amey Anirudha	Programming for Everyone(Getting started with Python)
9.		Excel Skills for Business: Essentials
10.		Excel Skills for Business: Intermediate I
11.	Patil Gaurav Divakar	Programming for Everybody (Getting Started with Python)
12.		Programming Fundamentals
13.	Suryavanshi Tejas Ishawar	Programming for Everybody (Getting Started with Python)
TE Electronics		
Sr. No.	Name	Course Name
14.	Aserkar Atharva Sanjay	Programming for Everybody (Getting Started with Python)
15.	Bhavar Aditya Parasharam	Programming for Everybody (Getting Started with Python)
16.		Python Data Structure
17.		Machine Learning: Regression
18.		Machine Learning: Classification

19.		Machine Learning: Clustering & Retrieval
20.	Darade Pankaj Narayan	Programming For Everybody (Getting Started With Python)
21.		Python Data Structures
22.	Jha Raghvendram Ranjan Sundaram	Using Databases with Python
23.		Python Basics
24.		Python Functions, Files, and Dictionaries
25.		Data Collection and Processing with Python
26.		Python Classes and Inheritance
27.		What is data science?
28.		Crash Course on Python
29.	Sawdekar Swanand Pradeep	Programming for Everybody (Getting Started with Python)
30.	Waghulde Shweta Nitin	Programming for everybody(Getting started with Python)
BE Electronics		
Sr. No.	Name	Course Name
31.	Ahire Nikhil Durgadas	Programming For Everybody (Getting Started with Python)
32.		Marketing in a Digital World
33.		Industrial IoT on Google Cloud Platform
34.		Introduction to HTML5
35.		Introduction to CSS3
36.		Interactivity with JavaScript
37.		Advanced Styling with Responsive Design
38.	Deore Rutuja Vijay	Python fo Everybody
39.		Grammar and Punctuation
40.	Gaikwad Anjali Mothabhau	HTML5
41.	Kadlag Gayatri Kiran	Leadership and Emotional Intelligence
42.		Cybersecurity and Internet of Things
43.	Kudhekar Vaishnavi	Introduction to Python
44.	Narayan	Introduction And Programming with IoT Board

45.	Pandey Ritu -	Introduction to Internet of Things and Embedded Systems
46.		Mindshift: Break Through Obstacles to Learning and Discover Your Hidden Potential
BE Electronics (2019-20)		
Sr. No.	Name	Course Name
47.	Chavan Vaishnavi Ashish	Inspiring and Motivating Individuals.
48.	Chavan Yash Hemant	Python Data Structures
49.		Programming for Everybody
50.	Deshmukh Suvarna Vikas	Speak English professionally: In person , online and on the phone
51.		Marketing in digital world
52.	Gagare Madhuri Nitin	Professional E-mails
53.	Patel Sakshi Ramanbhai	Programming for Everybody
54.	Raut Shubham Vitthal	Intelligent Machining
55.	Vishe Aishwarya Manoj	Inspiring and motivating individuals
SE E&TC		
Sr. No.	Name	Course Name
56.	Kasat Nandan Shailesh	Python For Everybody
57.	Thosar Parth Mangesh	c for everyone: programming fundamentals
TE E&TC		
Sr. No.	Name	Course Name
58.	Ahire Shubham	Essential Google Cloud Infrastructure: Foundation
59.	Balkrishna	AI For Everyone
60.	Dhikale Aadesh	AI for Everyone

	Changdev	
61.	Kasat Apeksha Manoj	Essential Google cloud infrastructure core services
62.		Programming for everybody getting started with python
63.	Khodke Pratik Deepak	Programming for Everybody (Getting Started with Python) University of Michigan
64.		Write professional Emails in English
65.	Mahajan Shruti Sandeep	Programming for Everybody (Getting Started with Python) University of Michigan
66.	Panpatil Amisha Nitendra	Programming for Everybody (Getting Started with Python) University of Michigan
67.	Patanwala Juzer Burhanuddin	Programming for Everybody (Getting Started with Python) by University of Michigan
68.		Python Data Structures by University of Michigan
69.		Using Python to Access Web Data by University of Michigan
70.	Rai Prathi Pradeep	The Arduino platform and c programming.
71.		Speak English Professionally: In Person, Online & On the Phone
72.	Sonje Pritam Dipak	Amazon Web Services
73.	Shimpi Ashish Nitin	Programming for Everybody (Getting Started with Python) University of Michigan
74.	Surana Rushabh Ashish	Python Basics by Michigan University
75.		Python Data Structures
76.		Python Functions,Files and Dictionaries
77.		Data Collection and Processing with Python
78.		Python Classes and Inheritance
79.		AI for Everyone
80.	Varkhede Swarali Surendra	Network Security & Database Vulnerabilities
81.		AI For Everyone
82.		Cyber security Roles, Processes & Operating System Security
83.		Cyber security Compliance Framework & System Administration

BE E&TC		
Sr. No.	Name	Course Name
84.	Alam Farhan Minhaz	Technical Support Fundamentals
85.		Programming for Everybody (Getting Started with Python)
86.		Python Data Structure
87.	Bankapur Shriharsh Vinod	Strategic Management
88.	Desale Nilam Dipak	Introduction to Virtual Reality
89.		Programming For Everybody (Getting Started With Python)
90.		Introduction to HTML5
91.	Gadling Pooja Vilas	Marketing in a Digital World
92.		Introduction to Psychology
93.	Hirekhan Ankita Ashwin	The Science of well-being
94.	Jadhav Aarti Baban	Introduction to Psychology
95.		Marketing in a Digital World
96.	Joshi Snehal Sunil	Artificial Intelligence
97.	Kumbhakarna Prajakta Shantaram	Introduction to Satellite Communication
98.	Mahajan Hrishikesh Vinod	Introduction to HTML5
99.		Programming for Everybody (Getting Started with Python)
100.		Python Data Structures
101.	Nag Arindam Probal	Introduction to Virtual Reality
102.	Raut Snehal Anil	Programming Fundamentals
103.	Shimpi Atharv Vijay	Using Python to Access Web Data
BE E&TC (AY 2019-20)		
Sr. No.	Name	Course Name
104.	Jaipurkar Vaibhav Dilip	Programming for Everybody (Getting Started with Python)
105.		Intelligent Machining

106.		Python Data Structures
107.	Jawade Shreyani Arun	Excel Skills for Business: Essentials
108.		Excel Skills for Business: Intermediate 1
109.	Kadam Siddhi Avinash	Programming for Everybody (Getting Started with python)
110.		First Step Korean
111.	Kansara Bhagyata Surendra	Introduction to solar cells
112.	Kulkarni Shripriya Gopal	Responsive Website Basics: Code with HTML, CSS, and JavaScript
113.	Mali Divyani Ramesh	Programming for Everybody (Getting Started with Python)
114.	Pawar Akshay Vinaykumar	Programming for Everybody (Getting Started with Python)

Faculty Orientation Workshop on Electrical Circuits

Department of Electronics and Telecommunication organized Faculty Orientation Workshop on BE (E&TC) Revised Syllabus 2015 Course under the aegis of BoS Electronics, University of Pune from 22nd June to 26th June 2020. The objective of this workshop was to orient all the faculty members towards the revised syllabus of SE (E&TC/Elex) and to bring in uniformity in teaching across all the colleges under the University of Pune. Due to pandemic condition workshop condition in college is not possible therefore the workshop is conducted online on zoom platform. Entire syllabus along with practical and tutorial was covered by expert resource persons in Electrical Circuits. All the six units were discussed in depth with very lively and interactive sessions. The inauguration of all FOW was organized at our college on virtual platform. It was rightly initiated and encouraged by Prof (Dr). Nitinji Karmalkar, Vice Chancellor, SPPU, Pune, Prof (Dr). M. G. Chaskar, Dean Science and Technology, SPPU, Pune and Prof. Dr. D. S. Bormane, BoS Chairman and all BoS members. K.K.W.I.E.E.R and department of Electronics and Telecommunication would like to thank them for giving an opportunity to host this online inauguration function and Faculty orientation workshop of Electrical Circuits at K.K.W.I.E.E.R and their encouragement throughout. A wide publicity was given by sending emails to all

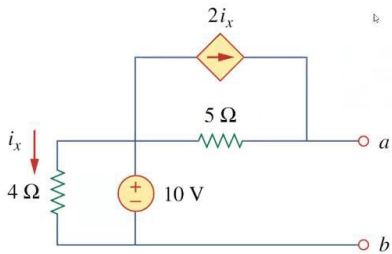
engineering colleges under Pune University. To our encouragement, many participants have shown interest in our workshop and 96 faculty members have registered for the workshop.


The workshop was conducted in eight sessions. In first six session all units are discussed. First six sessions are conducted for one hour fourth five minutes with two sessions per day, on fourth day practical session was conducted for 3 hour on virtual lab and on fifth day tutorial session was conducted for three hour.

- Session 1 was conducted by Dr. S. A. Patil (Ugale), K.K.W.I.E.E.R, Nashik on unit 1: Basic Circuit Analysis and Simplification Techniques.

Norton's Example

■ Using Norton's theorem, find R_N and I_N of the circuit in given Fig at terminals $a-b$.

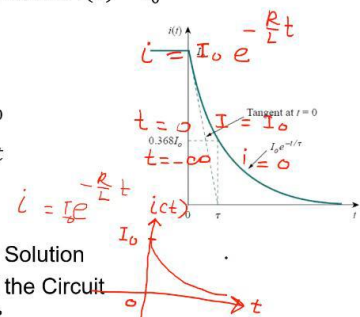


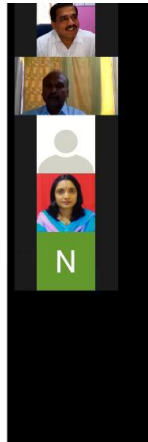


- Session 2 was conducted by Dr. Y. Ravinder from PICT, Pune on Unit 2: Transient analysis of basic RL, RC and RLC circuits.

Source Free RL Circuit

- Substituting Initial Condition $i(0) = I_0$
- $\log_e I_0 = -\frac{R}{L}(0) + K$
- $\log_e I_0 = K$
- $\log_e i = -\frac{R}{L}t + \log_e I_0$
- $\log_e i - \log_e I_0 = -\frac{R}{L}t$
- $\log_e \frac{i}{I_0} = -\frac{R}{L}t$
- $i = I_0 e^{-\frac{R}{L}t}$ Particular Solution
- Natural Response of the Circuit
- Time Constant $\tau = \frac{L}{R}$





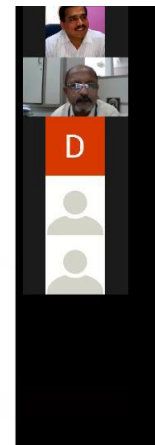
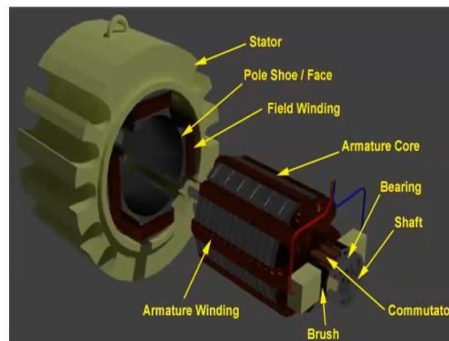
- Session 3 was conducted by Dr. Sharada Kore, Bharati Vidyapeeth's C o E for Women, Pune on Unit 3: Two Port Network Parameter and Function

Teaching Plan

Lecture No.	Lecture Topics	Learning Resource :TB1 : Chapt Page Nos. : 977-1104
L1	Two Port Networks Z Parameters ; Reciprocity and Symmetry Conditions	977-978 979-987
L2	Y Parameters; Reciprocity and Symmetry Conditions ABCD and inverse ABCD Parameters; Reciprocity and Symmetry conditions	987-998 998-1008
L3	h (g) and inverse h ; Reciprocity and Symmetry conditions	1009-1018
L4	Inter-relations and n/w connections , Applications of Parameters	1019-1104

- Session 4 was conducted by Prof. D. A. Bhagwat, D Y Patil College of Engg, Pune conducting session on Unit 4: DC machines

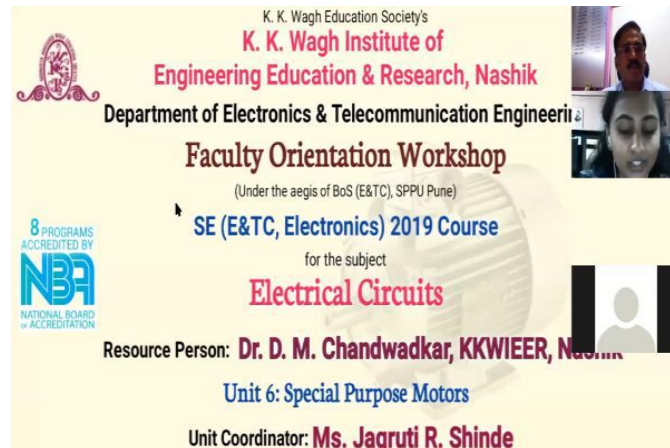
-Current produced in the armature winding is passed on to the commutator and then to external circuit by means of brushes.



- Session 5 was conducted by Prof. A. R. Dhamane, Singhgad College of Engineering on UNIT 5: AC Motors



- Session 6 was conducted by Dr. D. M. Chandwadkar, K.K.W.I.E.E.R, Nashik on UNIT 6: Special Purpose Motors

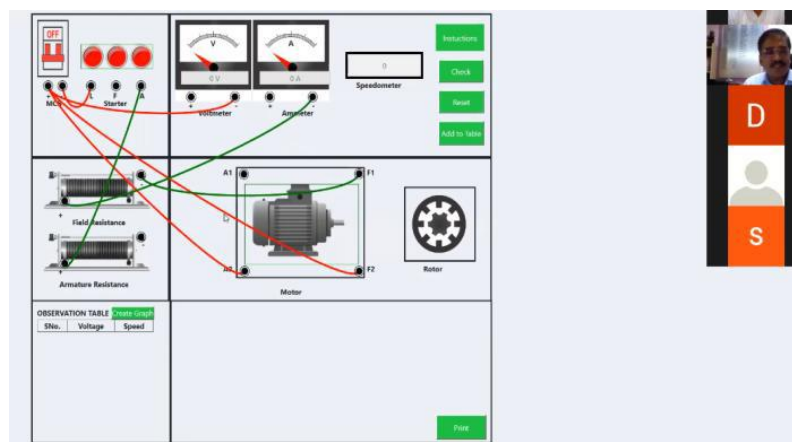


K. K. Wagh Education Society's
K. K. Wagh Institute of Engineering Education & Research, Nashik
 Department of Electronics & Telecommunication Engineering
Faculty Orientation Workshop
 (Under the aegis of BoS (E&TC), SPPU Pune)
SE (E&TC, Electronics) 2019 Course
 for the subject
Electrical Circuits
 Resource Person: **Dr. D. M. Chandwadkar, KKWIEER, Nashik**
Unit 6: Special Purpose Motors
 Unit Coordinator: **Ms. Jagruti R. Shinde**

8 PROGRAMS ACCREDITED BY
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On fourth day practical session was conducted by Dr. D. M. Chandwadkar ,HOD ,Dean (academics) E&TC Department, K.K Wagh Institute of Engineering Education and Research, Nashik along with Miss Snehal Patil Assistant professor in K. K. Wagh Institute of Engineering Education and Research , Nashik and Jagruti shinde Assistant professor in K. K. Wagh Institute of Engineering Education and Research , Nashik.The e-content delivery and teaching methodology adopted was very convincing. They opt an innovative sequence for explaining practical. Theory explanation followed by practical setup videos and then demonstration on virtual lab helps very much for better understanding of practical. They introduce various virtual labs for conducting practical's online. Many of the participants perform online simulation simultaneously and appreciated the efforts taken by team.

- Dr. D. M. Chandwadkar, K.K.W.I.E.E.R, Nashik conducting Practical session on Virtual Lab.



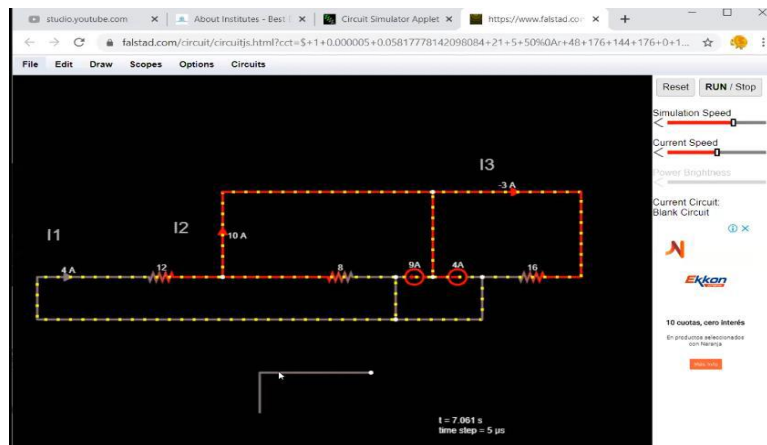
The virtual lab interface shows a motor circuit diagram with various components and measurement instruments. The components include a DC power supply, a switch, a rheostat, a voltmeter, an ammeter, a speedometer, a field resistance, an armature resistance, and a motor. The motor is connected to a rotor. The interface also includes an observation table with columns for S.No., Voltage, and Speed. A 'Start' button is visible at the bottom right. On the right side, there is a video feed of the instructor and a chat window with the letters 'D' and 'S'.

- Dr. S. A. Patil(Ugale), K.K.W.I.E.E.R, Nashik showing circuit implementation on Falstad.

Electrical Circuits-Lab Experiments

Group 1: Tutorial Assignments • Tutorials must be conducted batch wise. • Batch size should be more than 20 students. • The main objective of this tutorial is to focus on the outcomes defined in the theory syllabus by solving the following assignment based on paper work.

- 1 (a) Determine the following using KVL, KCL, node, loop analysis and circuit simplification techniques.
 1. Currents through various given branches.
 2. Voltages across the given branches.
 3. Power absorbed or delivered by a given component.
 (Analysis of simple DC circuits using all above techniques & Analysis of simple AC circuits using Mesh and Nodal analysis is expected)
- 1 (b) Determine the following using Network Theorems. One problem statement on each theorem.
 1. Currents through various given branches.
 2. Voltages across the given branches.
 3. Power absorbed or delivered by a given component.
 (Analysis of simple DC circuits using all theorems is expected)



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