



K. K. Wagh Education Society's

K.K. WAGH INSTITUTE OF ENGINEERING EDUCATION & RESEARCH, NASHIK

Hirabai Haridas Vidyanagari, Amrutdham, Panchavati, NASHIK-422003 (Maharashtra) INDIA.

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(Affiliated to University of Pune ID No. PU/NS/Engg./030(1984) & Approved by AICTE)

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**Faculty Orientation Workshop On
SE (E&TC/Elex) Revised Syllabus 2019 Course
Under the aegis of
BoS Electronics & Telecommunication, SPPU, Pune
22nd June–26th June 2020**

Sub.: 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 session 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.



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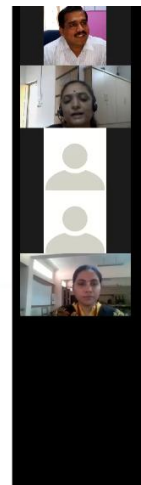
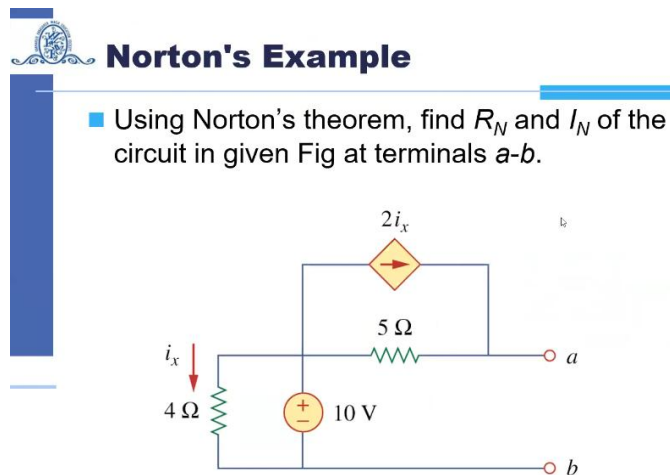
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Dr. S.A Patil (Ugale), Associate Professor, E&TC Department, K.K Wagh Institute of Engineering Education and Research, Nashik was kind enough to accept our invitation and delivered a lecture on Unit 1: Basic Circuit Analysis and Simplification Techniques. The online session was nicely delivered and all the participants appreciated the efforts taken by the resource person in preparing the PowerPoint presentation. The presentation included small animations which clarified all the basic concepts related to circuit analysis. It started with Course Objectives, Course Outcomes, mapping of Course Objectives with Course outcomes, teaching methodology adopted and all topics of Unit 1 with examples & animated slides. The session was concluded by the summary of the Unit. The second session was planned on



Dr.S.A.Patil(Ugale) ,
K.K.W.I.E.E.R,Nashik,
conducting session

unit 1: Basic Circuit
Analysis and Simplification
Techniques.

Unit2: Transient analysis of basic RL, RC and RLC circuits. The resource person for the session was Dr.Y.Ravinder from PICT, Pune. He started with the basics of electronic components. In his session he covered analysis of Source free and driven RL and RC circuits. He concluded his session by satisfactorily answering to the questions raised by faculty participants. Dr.Ravinder's session was very much informative and it was appreciated by all the attendees.



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Source Free RL Circuit

- Substituting Initial Condition $i(0) = I_0$

$$\log_e I_0 = -\frac{R}{L}(0) + K$$

$$\log_e I_0 = K$$

$$\log_e i = -\frac{R}{L}t + \log_e I_0$$

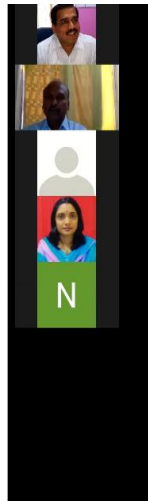
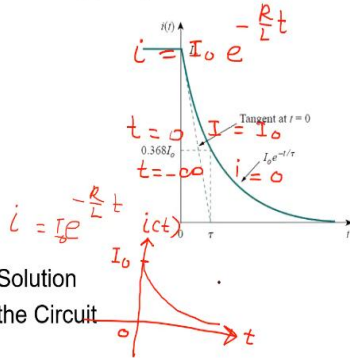
$$\log_e i - \log_e I_0 = -\frac{R}{L}t$$

$$\log_e \frac{i}{I_0} = -\frac{R}{L}t$$

$$i = I_0 e^{-\frac{R}{L}t} \text{ Particular Solution}$$

- Natural Response of the Circuit

$$\text{Time Constant } \tau = \frac{L}{R}$$



Dr.Y.Ravinder from PICT, Pune conducting session on Unit 2: Transient analysis of basic RL, RC and RLC circuits.

On second day session one was planned on Unit 3: Two Port Network Parameter and Function .The session was conducted by Dr.Sharada Kore, BharatiVidyapeeth'sCoE for Women, Pune Dr.Sharada Kore madam started her presentation by telling importance of change in teaching from physical to online. She discovered all the concepts of two port network parameters and functions. The online session was nicely delivered and all the participants appreciated.

Lecture No.	Lecture Topics	Learning Resource
L1	Two Port Networks	977-978
	Z Parameters ; Reciprocity and Symmetry Conditions	979-987
L2	Y Parameters; Reciprocity and Symmetry Conditions	987-998
	ABCD and inverse ABCD Parameters; Reciprocity and Symmetry conditions	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

Dr. Sharada Kore, Bharati Vidyapeeth's C o E for Women, Pune conducting session Unit 3: Two Port Network Parameter and Function



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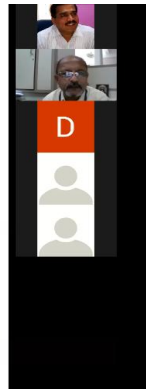
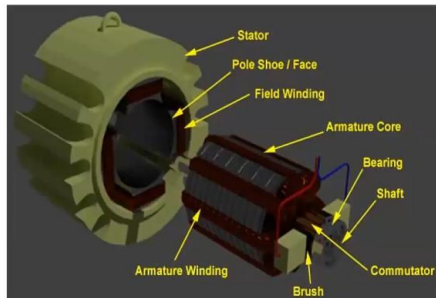
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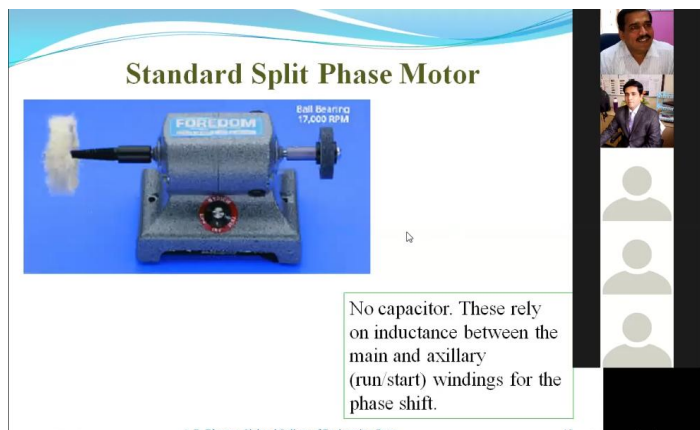
The second session was planned on Unit 4: DC Machines during 11am to 12.45pm. The resource person for the session was Prof. D. A. Bhagwat, D Y Patil College of Engg, Pune who is also the co-convenor of the FOW. After the introduction of resource person to the audience, Prof. Bhagwat has started with his session. Prof. Bhagwat has started with basics of emf equation & DC generator. The flow of the session was well organized by the resource person. He has concluded his of simplifying complicated part in easier way was appreciated by all.

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



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

On third day first session was conducted on UNIT 5: AC Motors (Single Phase and Three Phase) we are having Prof.A. R. Dhamane, Assistant Professor, Singhgad College of Engineering, Pune. He explained industrial application very well. The online session was nicely delivered and all the participants appreciated the efforts taken by the resource person in preparing the PowerPoint presentation.



Prof. A. R. Dhamane, Singhgad College of Engineering conducting session UNIT 5: AC Motors



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For conducting UNIT 6: Special Purpose Motors we are having Dr. D. M. Chandwadkar, Dean (Admissions), HOD E&TC Department, K.K Wagh Institute of Engineering Education and Research, Nashik. Sir started his presentation by telling importance of Subject Electrical circuits. He explained all the special motors like BLDC Motor, Stepper motor along with their drives. He also explained the part of Electric Vehicle. The online session was nicely delivered and all the participants appreciated the efforts taken by the resource person in preparing the PowerPoint presentation.

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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. Jaaruti R. Shinde**

Dr. D. M. Chandwadkar, K.K.W.I.E.E.R,
Nashik, Conducting session on UNIT 6:
Special Purpose Motors

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.



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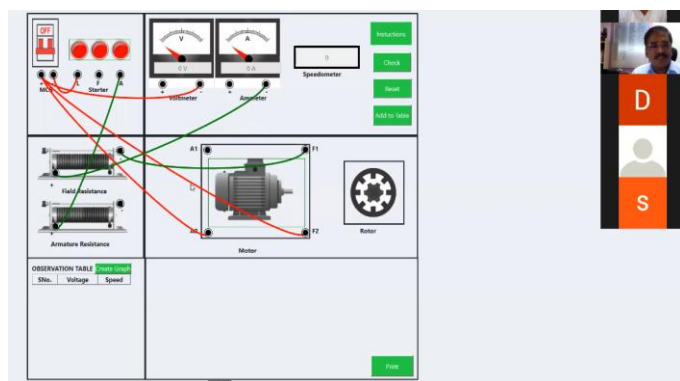
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Dr.D.M.Chandwadkar,
K.K.W.I.E.E.R,Nashik, conducting
Practical session on Virtual Lab.

On the last day of the faculty orientation workshop, there was a session on 'tutorials' planned on various topics related to electrical circuits for 3 hours. The resource person for the session was Prof. Dr. S. A. Patil (Ugale), Associate Professor, E&TC Department, K.K. Wagh Institute of Engineering, Education and Research, Nashik. And, Prof. S. D. Patil assisted her throughout the session. All the basic concepts related to electrical circuit along with how to save the circuit and create URL for the circuit were covered in the session on falstad.com. The use of 'tinker cad' tool grabbed the attention of all participants as it helped to explain few topics (such as RC Circuit, Z parameters, how to save and rename circuit, how to open the saved circuit) in a very creative as well as innovative way. Also, the information was provided regarding the use of virtual lab from Amrita Vishwa Vidyapeeth. Many of the participants perform online simulation simultaneously and appreciated the efforts taken by team.



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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)

The simulator interface shows a circuit diagram with components labeled I1, I2, I3, 1A, 10A, 3A, 1A, 2A, 5A, 6A, 1A, 16. The time step is 5 μs.

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

All the resource persons are highly appreciated for their interactive and valued inputs and also for their dedication. On behalf of K.K.W.I.E.E.R,Nashik, Board of studies and on participants' behalf, we are grateful to all these resource persons for sparing their valuable time and energy. Their contribution was invaluable. They deserve a great applaud from all of us. Teaching methodology, lecture notes and presentation were also prepared and circulated to all the participants. The novelty about this session was that enough though it was an online session, the overall arrangement by the Workshop Coordinator Dr. S.A Patil (Ugale) and the hosting Institute was in such a manner that all participants felt that they are attending live session. The feedback from all participants has been excellent.

By means of this report, we would like to place on record our appreciation and gratitude towards the Management of K.K.W.I.E.E.R,Nashik Principal Dr. K.N. Nandurkar, for their continuous support and encouragement in conducting this workshop. Coordinator is also grateful to all department colleagues for their untiring efforts in making this workshop a grand success.

We look forward to continuous cooperation and encouragement for all future endeavors.

Prof .Dr. S. A. Patil(Ugale)
FOW, Coordinator,
Department of E&TC

Prof. Dr. D. M. Chandwadkar
FOW, Co-convener
BoS Member-SPPU, HoD E&TC, KKWIEER