BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

<u>Name of the Activity: Quiz</u>

Faculty Name: Dr. Chava Sunil Kumar **Class: II – I / EEE**

Academic Year: 2025-26

Subject Name: Power Systems - I (PS - I)

Topic: Unit-I, Unit-II, Unit-IV, Unit-V of PS-I

Date: 16 September 2025, 16 September 2025, 21 November 2025. 21 November 2025. 10 December 2025.

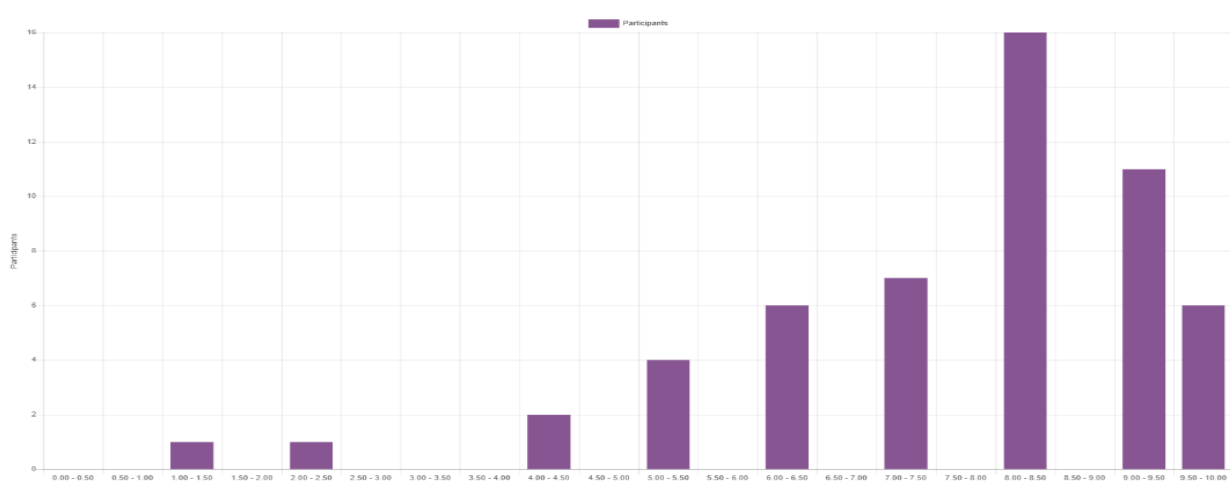
Brief Write-up

Moodle is one of the Learning Management System (LMS) where we can incorporate required additional tools which are used for teaching learning activities. Quiz is one of the powerful tool to monitor and diagnose the student performance with certain types of knowledge. Using this tool effectively can boost your course's effectiveness, and promote student performance. The quiz is scheduled in the Moodle with time limits and informed the same who students who were added in the Moodle course and the quiz is consisting of Multiple-choice questions with easy, moderate and hard levels.

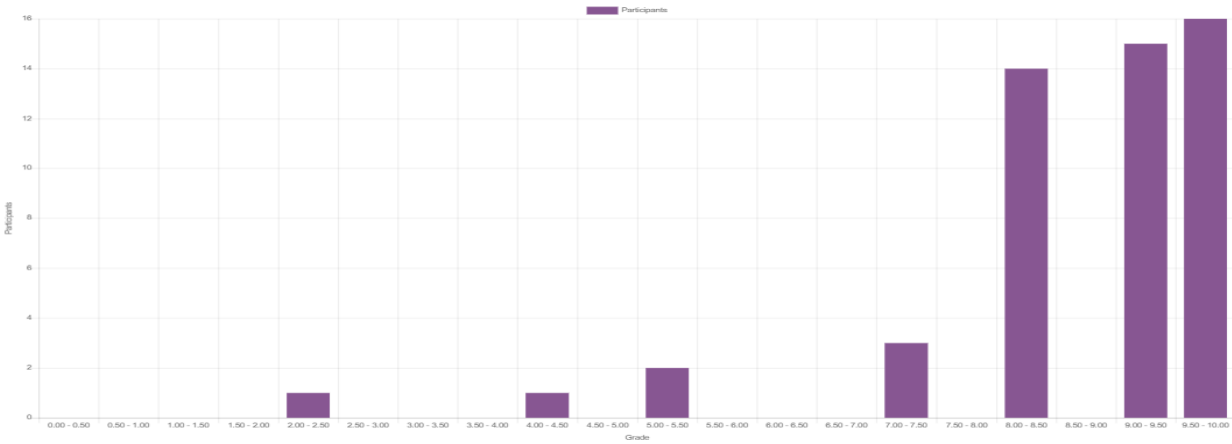
The advantages of Online Quiz in Moodle are as follows.

1. Students can be engaged remotely in an attractive mode
2. At the same time large number of students can take the test.
3. The questions and options are randomized.
4. Results and summary of quiz with correct options can be displayed immediately after completing the quiz.
5. Faculty can analyze the students understanding levels with the results immediately.

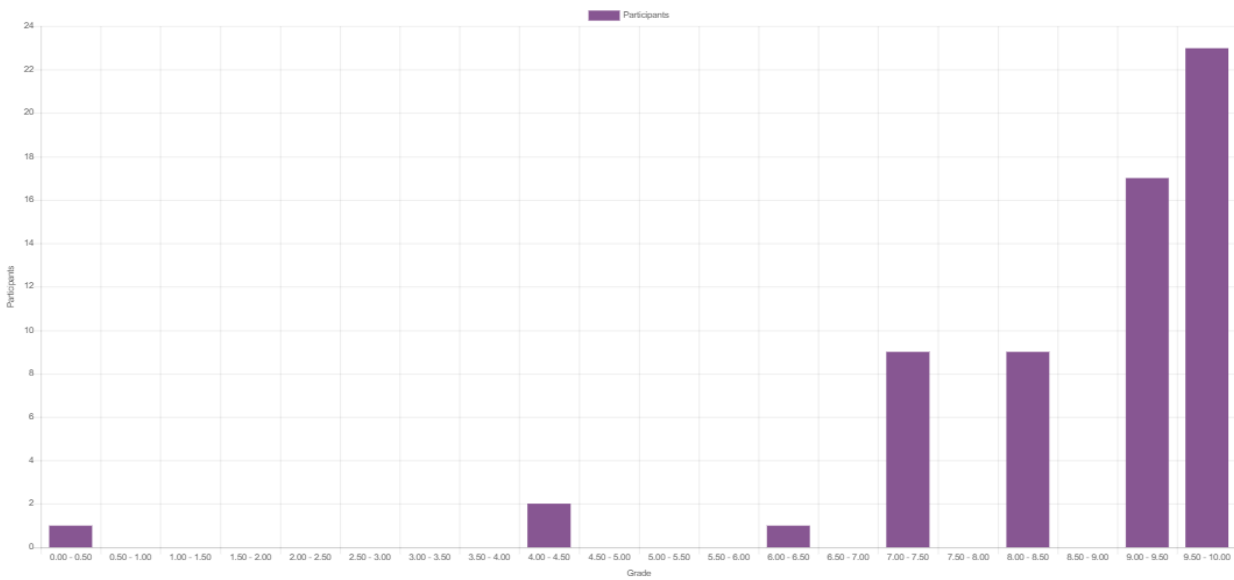
<u>Unit-I Quiz, No. of Students participated: 60</u>



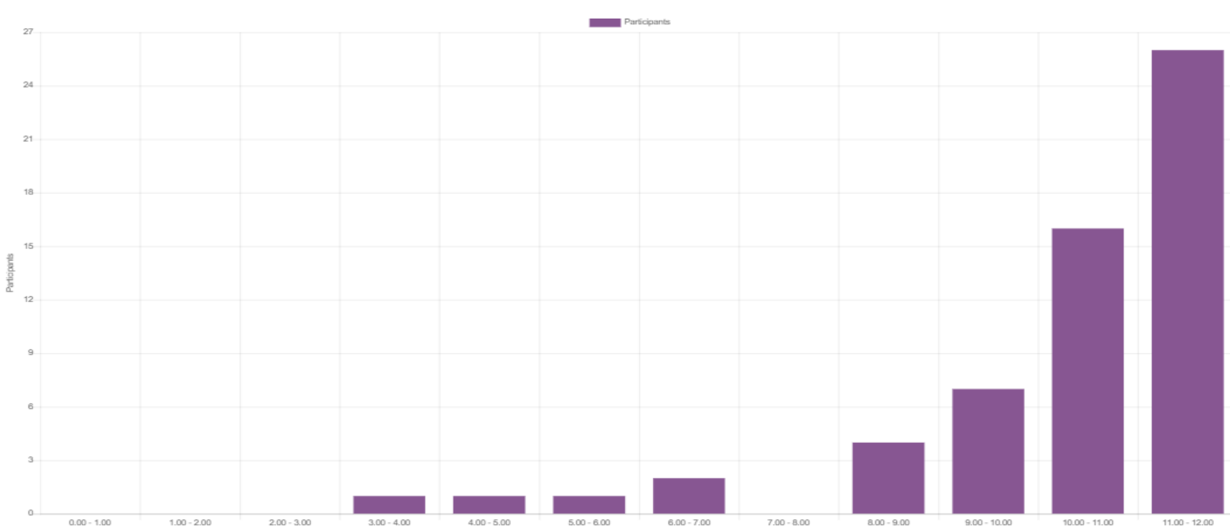
Unit-II Quiz, No. of Students participated: 56



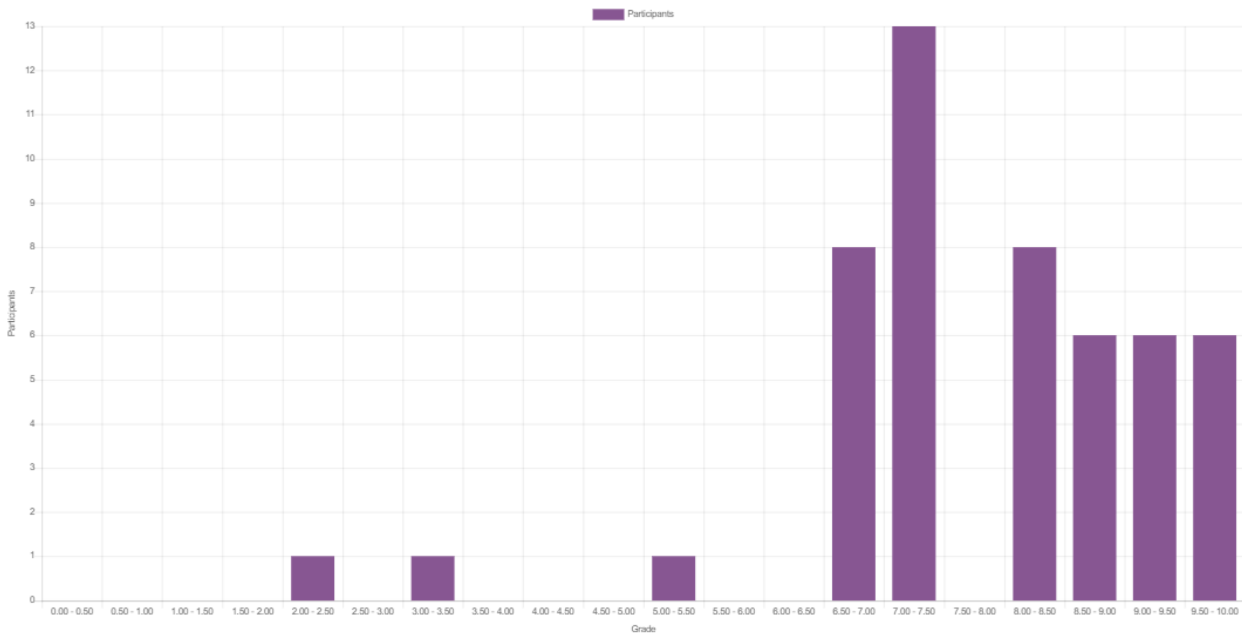
Unit-III Quiz, No. of Students participated: 65



Unit-IV Quiz, No. of Students participated: 65



Unit-V Quiz, No. of Students participated: 64



Dr. Chava Sunil Kumar
Professor, EEE Department

BVRIT HYDERABAD College of Engineering for Women
Department of Electrical and Electronics Engineering

Name of the Activity: Moodle Quiz

Faculty Name: Dr. M Rupesh **Class: IV -I / EEE**

Academic Year: 2025-2026

Subject Name: Electric & Hybrid Vehicles (EHV)

Topic: Complete Syllabus and Autonomous Electric Vehicle

Date: 24.08.2025.

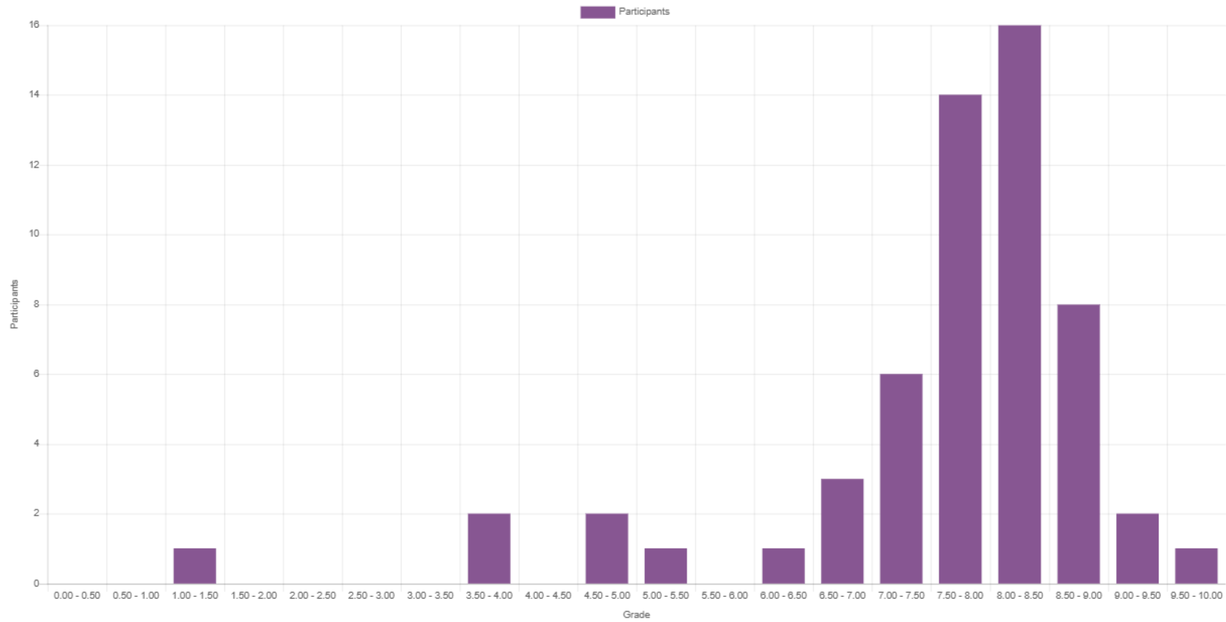
Brief Write-up

Integration of Online Quiz through Moodle for Effective Assessment:
Moodle, a robust Learning Management System (LMS), provides a versatile platform to enhance teaching-learning processes by incorporating various interactive tools. Among these, the Quiz module is a powerful feature that allows instructors to effectively assess, monitor, and support student learning.In this activity, an online quiz was conducted through Moodle with a predefined time limit. Students enrolled in the Moodle course were notified in advance. The quiz consisted of multiple-choice questions (MCQs) designed with varying difficulty levels — easy, moderate, and hard — to evaluate students' cognitive skills comprehensively.

Key Benefits of Conducting Online Quizzes in Moodle

1. Remote Participation: Students can take the quiz from any location, promoting flexibility and accessibility.
2.Large-Scale Engagement: Allows a large number of students to participate simultaneously without compromising system performance.
3.Randomized Content Delivery: Questions and options are randomized to reduce the risk of academic dishonesty.
4.Immediate Feedback: Students receive instant results along with correct answers, facilitating self-assessment and learning**.**
5.Real-Time Performance Analysis: Instructors can instantly access quiz analytics to gauge student understanding and adjust instruction accordingly.

A Moodle quiz was conducted for the course **Electrical & Hybrid Vehicles** to assess students' understanding of electric vehicle systems and autonomous vehicle technologies. The quiz was organized using the Moodle platform and consisted of 64 multiple-choice questions covering topics such as battery management systems, regenerative braking, hybrid vehicle architectures, sensor technologies, and vehicle automation levels. Around 67 students participated and completed the quiz within the allotted time. The automated evaluation provided immediate feedback and performance analysis. The results indicated that most students demonstrated good conceptual understanding of electric and hybrid vehicle components, while a few required further clarity on autonomous vehicle sensor fusion and automation concepts.



Dr. M Rupesh
Associate Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Adoption of the Flipped Classroom Strategy for Active Learning

Faculty Name: Ms.Banka.Sujatha **Class: IV-I / EEE**

Academic Year: 2025-2026

Subject Name: Power Electronic Applications to Renewable Energy Systems (PEARS)

Topic: Unit-I - Battery charger/discharge controller

Date: 06/08/2025

No. of Students participated: 60

Brief Write-up :

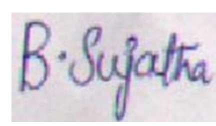
To enhance student understanding, the **Flipped Classroom** approach was implemented. In this method, students reviewed instructional materials such as videos, presentations, and reading resources before the class session. The relevant PPT materials and video links were uploaded in the **Learning Management System (LMS)** prior to the commencement of the class.
During the classroom session, time was devoted to interactive discussions, clarification of concepts, and problem-solving activities related to solar charge controllers. This approach encouraged active participation and collaborative learning among students.

A **Battery Charge/Discharge Controller** is an essential component in standalone photovoltaic (PV) systems and hybrid renewable energy systems. A **Solar Charge Controller** regulates the voltage and current coming from solar panels to batteries, ensuring safe charging while preventing overcharging and deep discharging. The session covered important topics such as **types of solar charge controllers** and **key factors in selecting an appropriate charge controller** for different solar power applications.
This activity was conducted to provide **industrial exposure to students**, enabling them to understand the practical aspects of solar power systems. The knowledge gained through this activity supports **academic learning, technical skill development, and preparation for job interviews in the renewable energy sector**.

Key Benefits:

1. **Enhanced Conceptual Understanding:** Students gained a deeper understanding of solar charge controllers and their role in photovoltaic systems.
2. **Improved Analytical Skills:** Students learned to analyze different types of solar charge controllers and identify suitable controllers for specific applications.
3. **Active Learning Environment:** Classroom sessions focused on discussion and problem-solving, promoting better engagement and participation.
4. **Self-Paced Learning:** Students were able to review pre-class materials at their own pace before attending the classroom session.
5. **Industry-Oriented Knowledge:** The activity helped students understand practical aspects of solar energy systems relevant to industry and technical interviews.

https://www.vishnulearning.com/course/view.php?id=12067



B.Sujatha
Associate Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Moodle Quiz

Faculty Name: Ms.Banka.Sujatha **Class: IV -I / EEE**

Academic Year: 2025-2026

Subject Name: Power Electronic Applications to Renewable Energy Systems (PEARS)

Topic: Unit-I, Unit-II, Unit-III, Unit-IV, Unit-V of PEARS

Date: 09/09/2025, 16/09/2025, 19/09/2025, 16/11/2025, 16/11/2025.

Brief Write-up

Integration of Online Quiz through Moodle for Effective Assessment:

Moodle, a robust Learning Management System (LMS), provides a versatile platform to enhance teaching-learning processes by incorporating various interactive tools. Among these, the Quiz module is a powerful feature that allows instructors to effectively assess, monitor, and support student learning.In this activity, an online quiz was conducted through Moodle with a predefined time limit. Students enrolled in the Moodle course were notified in advance. The quiz consisted of multiple-choice questions (MCQs) designed with varying difficulty levels — easy, moderate, and hard — to evaluate students' cognitive skills comprehensively.

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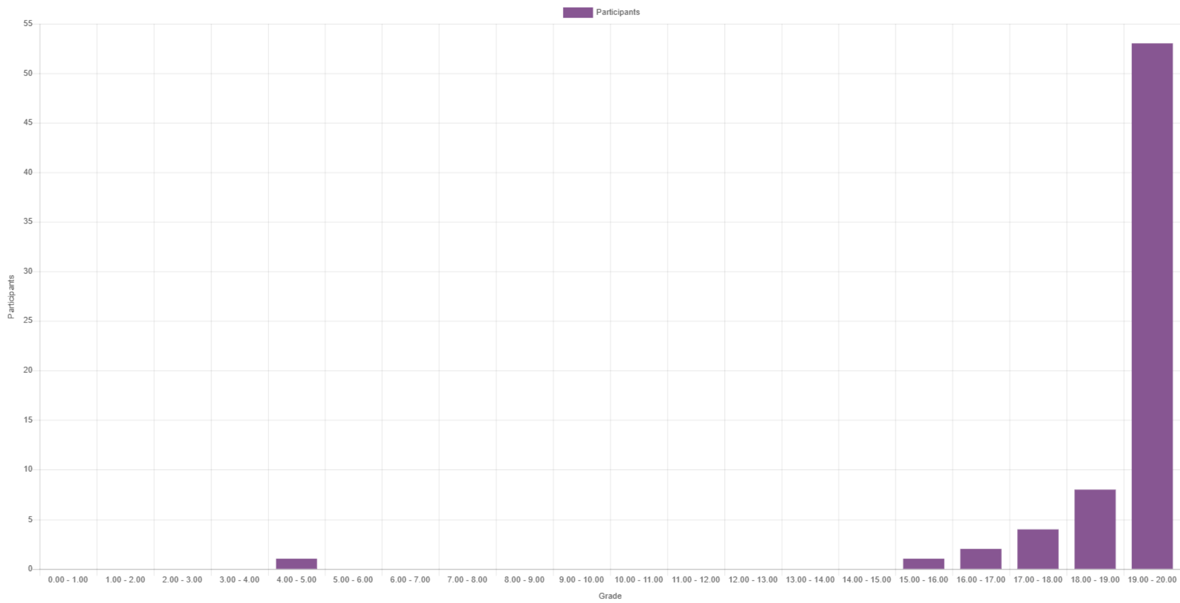
2.Large-Scale Engagement: Allows a large number of students to participate simultaneously without compromising system performance.

3.Randomized Content Delivery: Questions and options are randomized to reduce the risk of academic dishonesty.

4.Immediate Feedback: Students receive instant results along with correct answers, facilitating self-assessment and learning.

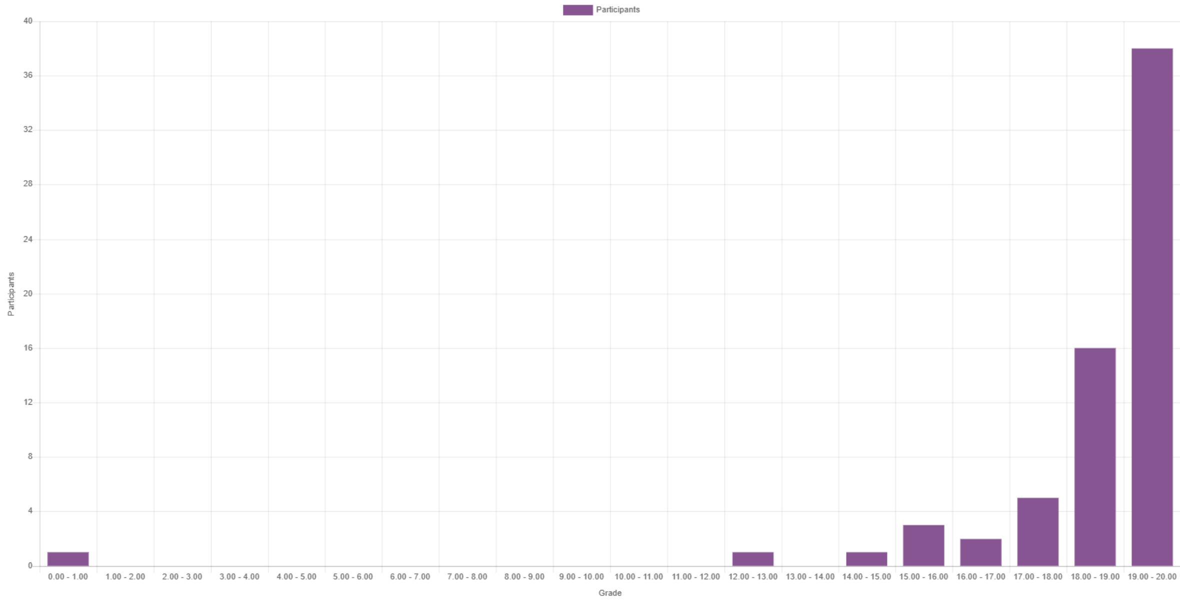
5.Real-Time Performance Analysis: Instructors can instantly access quiz analytics to gauge student understanding and adjust instruction accordingly.

Unit-I Quiz, No. of Students participated: 69

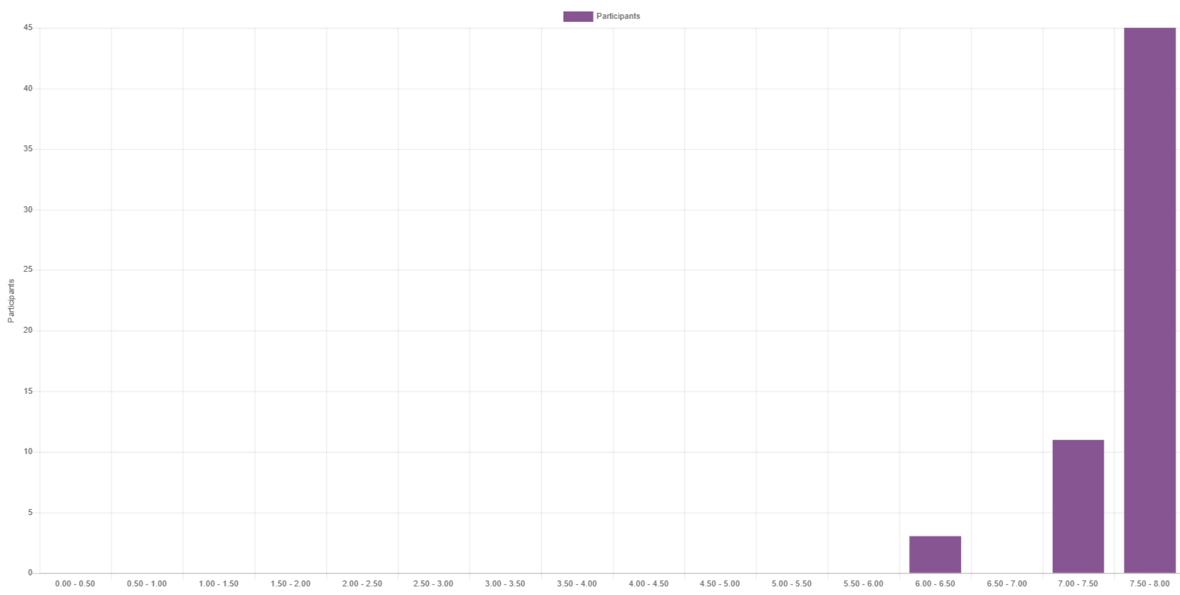


Unit-II Quiz, No. of Students participated: 69

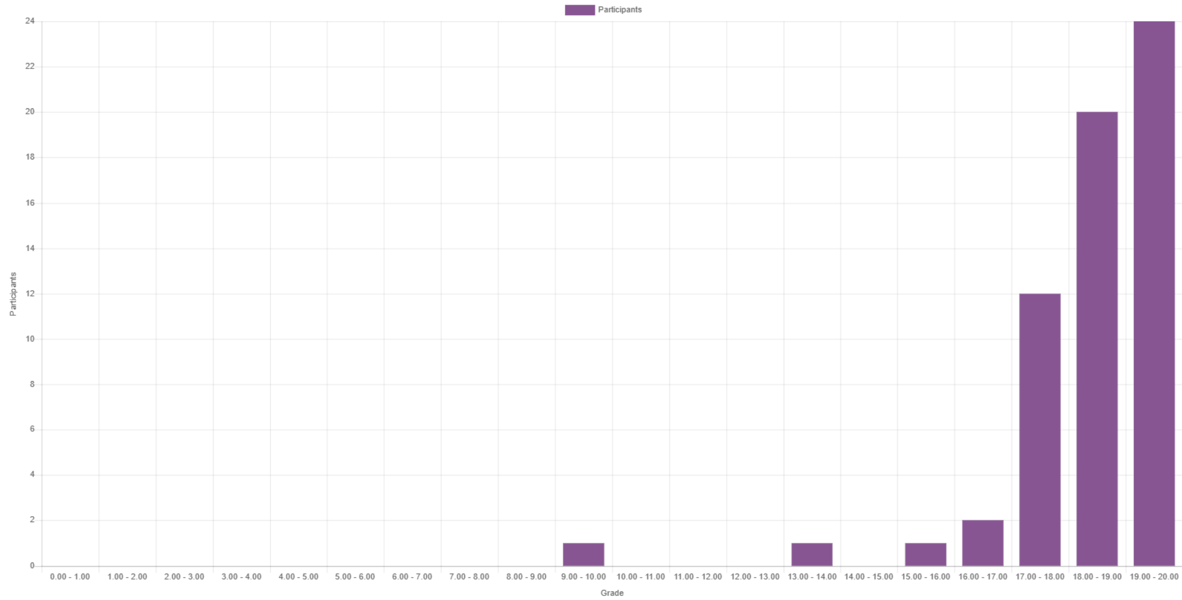
AKSHITHA ALLURI Review attempt	23wh5a0201@bvrithyderabad.edu.in	Finished	12 September 2025 8:42 PM	12 September 2025 8:47 PM	5 mins	18.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
CHARISHMA P Review attempt	22wh1a0227@bvrithyderabad.edu.in	Finished	15 September 2025 11:38 AM	15 September 2025 12:08 PM	30 mins 1 sec	14.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
BHAVANA T Review attempt	23wh5a0211@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:09 PM	16 mins 20 secs	18.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
SAI AKSHITHA SAMUDRALA Review attempt	22wh1a0230@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:11 PM	18 mins 29 secs	19.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
MOUNIKA DIBBA Review attempt	22wh1a0240@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:12 PM	19 mins 17 secs	19.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
ANJALI R Review attempt	23wh5a0213@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:11 PM	18 mins 44 secs	20.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
ABHINAYA ADLA Review attempt	23wh5a0203@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:11 PM	18 mins 11 secs	19.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00
PRATHUSHA SIPANI Review attempt	22wh1a0224@bvrithyderabad.edu.in	Finished	15 September 2025 11:53 AM	15 September 2025 12:12 PM	19 mins 37 secs	18.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✖ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00



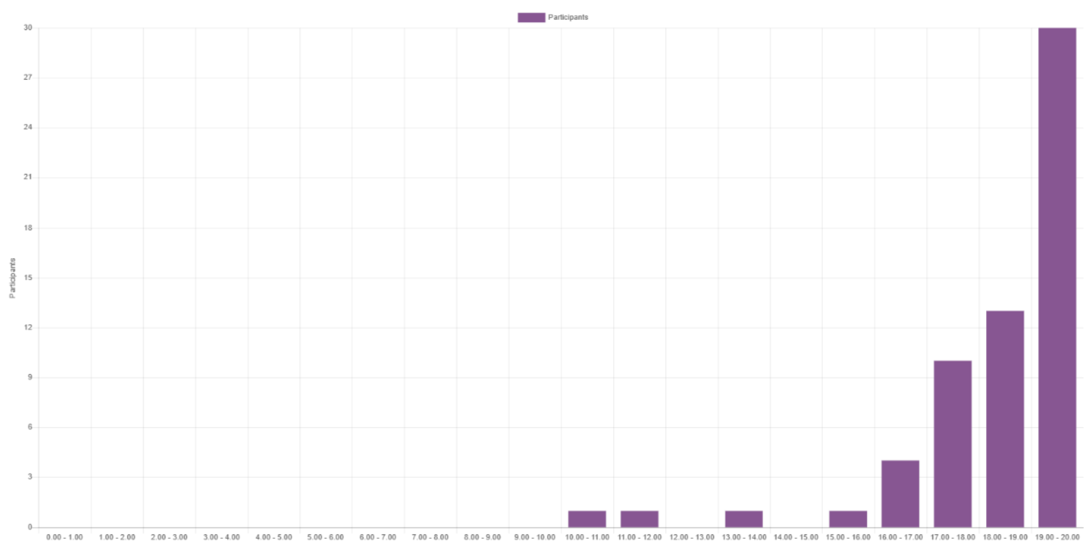
Unit-III Quiz, No. of Students participated: 62

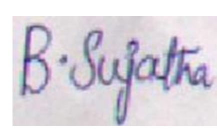


Unit-IV Quiz, No. of Students participated: 62



<u>Unit-V Quiz, No. of Students participated: 62</u>





B.Sujatha
Associate Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Simulation-Driven Analysis of Solar and Wind Energy Converters using MATLAB/Simulink

Faculty Name: Ms.Banka.Sujatha **Class: IV-I / EEE**

Academic Year: 2025-2026

Subject Name: Power Electronic Applications to Renewable Energy Systems (PEARS)

Topic: Unit-V - Hybrid solar PV and wind systems

Date: 09/10/2025 to 13/10/2025

No. of Students participated: 69

Brief Write-up :

A **hybrid renewable energy system** combines **solar photovoltaic (PV) generation and wind turbine generation** with an **Energy Storage System (ESS)** and a grid interface. The main objective of such systems is to ensure **continuous, reliable, and stable power supply** by coordinating multiple energy sources effectively.

As part of this activity, students performed various simulations related to **solar photovoltaic systems, wind energy conversion systems, power electronic converters, and grid-connected renewable energy systems** using **MATLAB** and **Simulink**. After the simulation activity, **grid-integration challenges in solar–wind hybrid systems** were also discussed in the class.

Objectives

1. To understand the **concept, importance, and operation of hybrid renewable energy systems**.
2. To explore **different types and configurations of solar–wind hybrid systems** for various applications.
3. To develop **practical knowledge of power electronic converters** used in renewable energy systems.
4. To provide **hands-on experience in simulation and modeling using MATLAB/Simulink**.
5. To enhance **analytical, problem-solving, and technical presentation skills** through simulation-based learning.

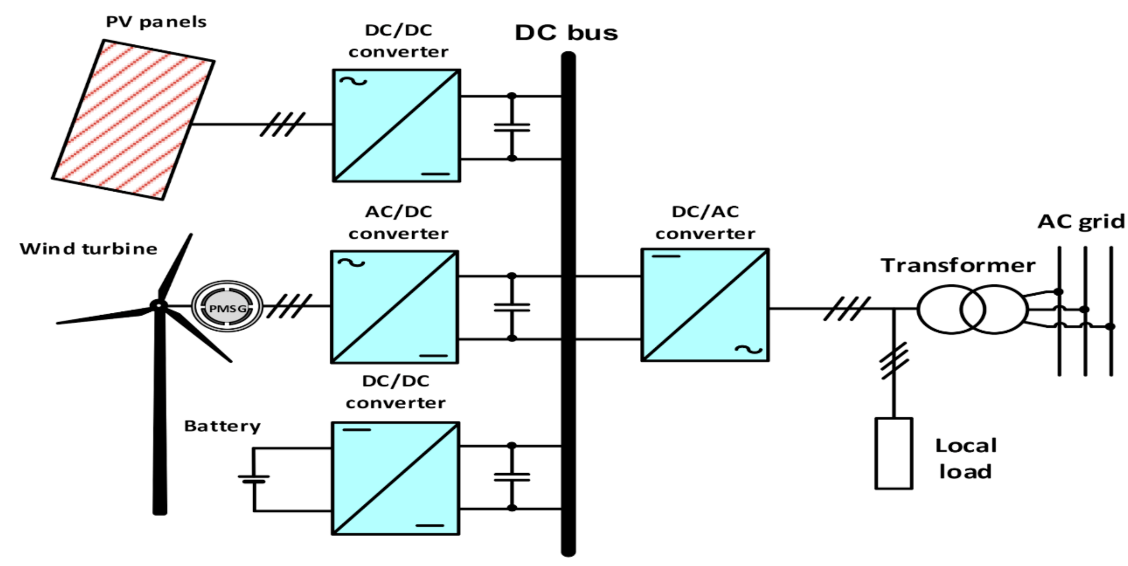
Methodology

1. The instructor introduced the **concept and working principles of solar–wind hybrid energy systems** and their significance in modern power systems.

2. Students were assigned **simulation-based topics related to solar PV systems, wind energy conversion systems, and DC–DC converters**.
3. Students performed simulations using MATLAB/Simulink to analyze **system behavior, converter performance, and power flow characteristics**.
4. Some of the Key simulation models included:
    - Grid-connected PV system simulation
    - MATLAB simulation of wind power generation using various **Wind Generators**
    - Simulation of a **PV array under partial shading effect**
    - **Simulation of isolated and non-isolated converters**
    - Simulation of a **closed-loop boost converter using PID controller**
    - AC–DC conversion in wind energy systems using **power converters**
5. Students prepared **videos and presentations explaining the simulation process, results, and observation points**, enabling peer learning and better conceptual understanding.

Outcomes

1. Students developed a **clear understanding of hybrid renewable energy systems and their practical applications**.
2. Enhanced knowledge of **solar PV systems, wind energy converters, and power electronic interfaces**.
3. Students gained **hands-on experience in modeling and simulation using MATLAB/Simulink**.
4. Improved **analytical thinking, problem-solving ability, and technical communication skills**.
5. The activity strengthened students' preparedness for **industry-oriented projects, research work, and technical interviews in renewable energy and power electronics domains**.



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Simulation of an AC–DC and Buck Converter-Based Grid-Connected Battery Charging System

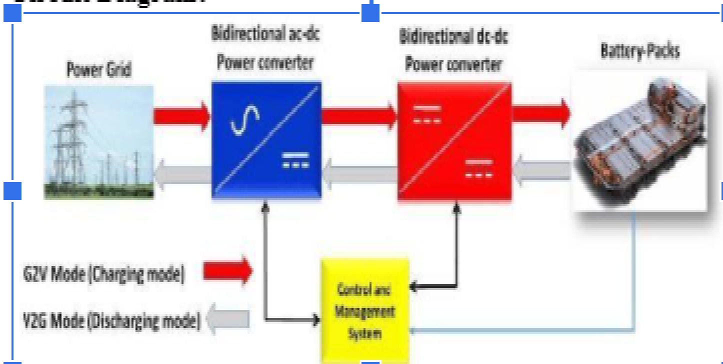
23WH5A0213-R.Anjali

Description:

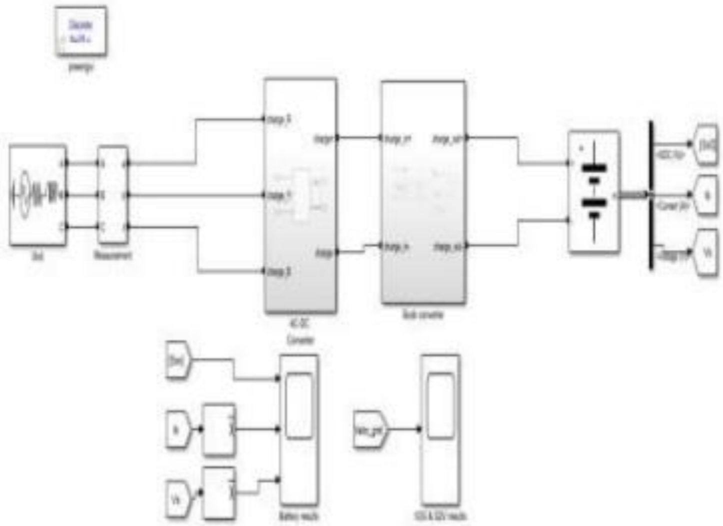
This system converts AC power from the grid into stable DC using a controlled AC–DC converter. The DC output is then stepped down through a buck converter to match the battery's required charging voltage and current. The simulation helps analyze how the converters respond to changing grid and load conditions. It ensures smooth power flow, reduced ripple, and efficient charging. The model also checks the charging behavior under different battery states. Protection features like overcurrent and overvoltage are observed in the simulation. Overall, the setup helps in designing a reliable and efficient grid-connected battery charging system.

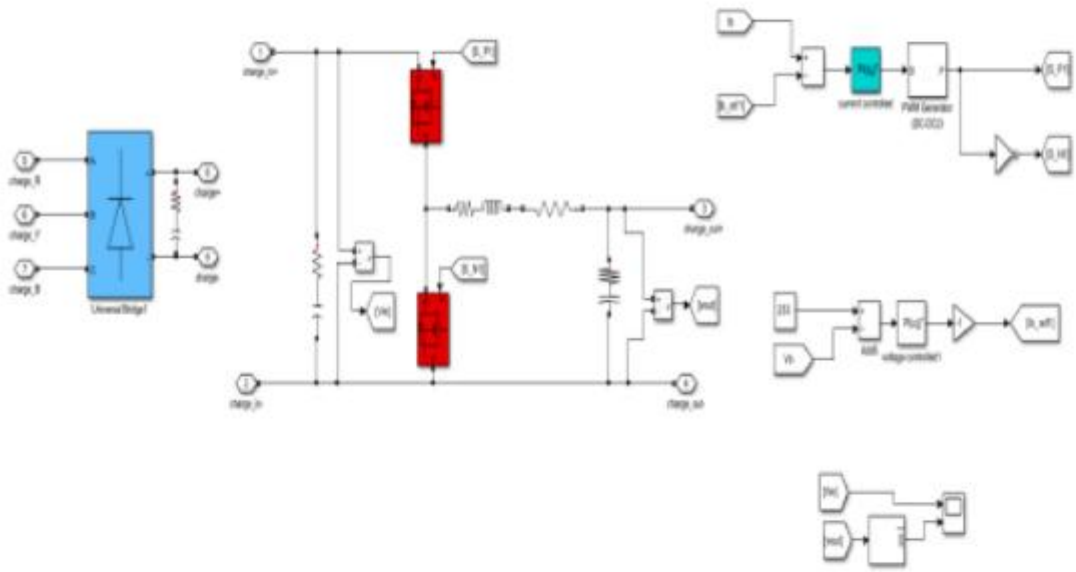
Additionally, the simulation evaluates converter efficiency, switching performance, and thermal behavior under different loads. It also examines how quickly the control system stabilizes the voltage and current during fluctuations. These insights help in selecting proper component ratings and designing a safer, more durable charging system for real-world applications.

Circuit Diagram:



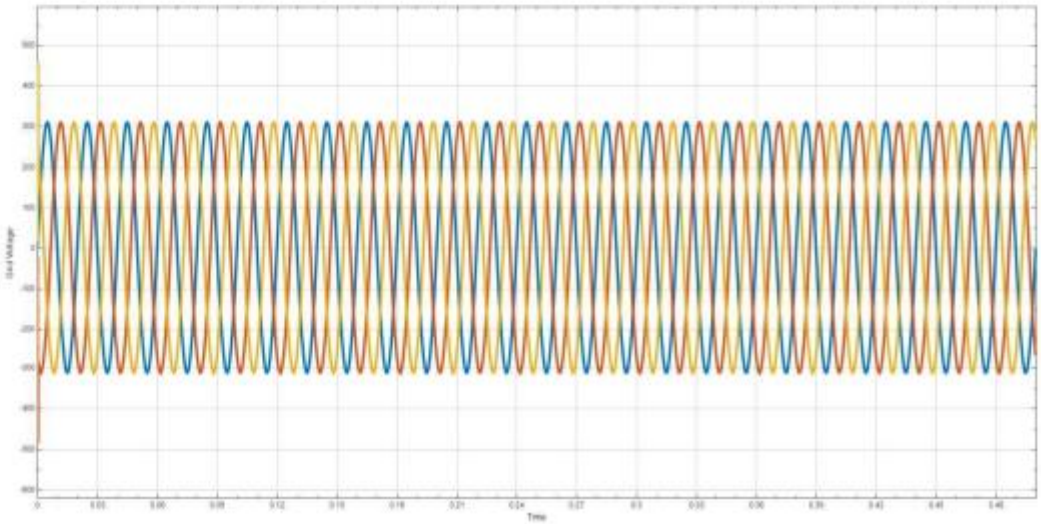
Simulation Model:



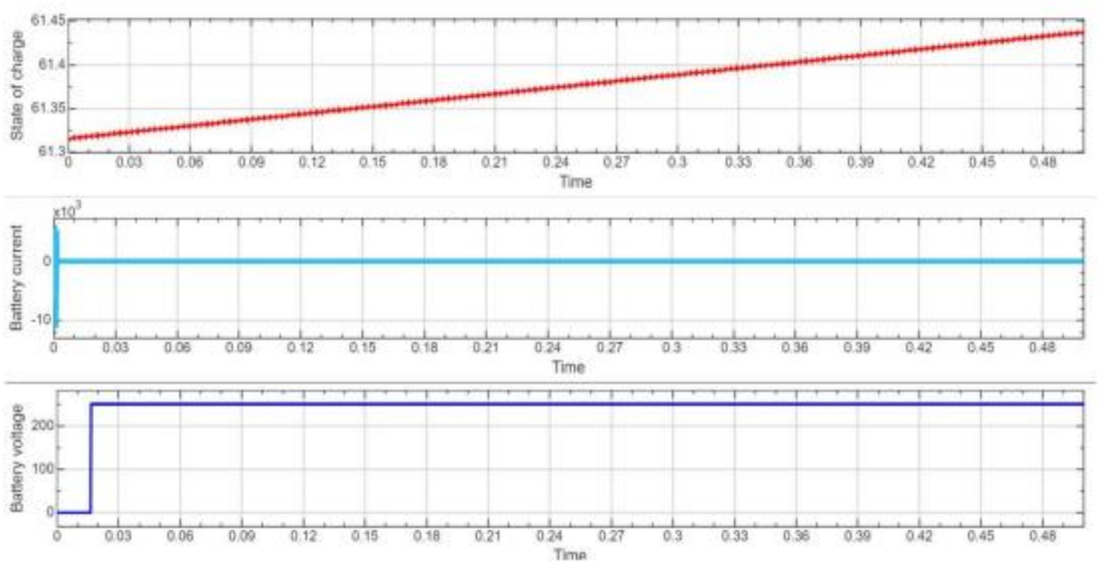


Simulation Output Waveforms:

1. Grid Voltages



2. Battery charging current and Voltage



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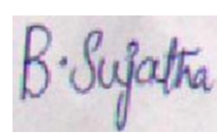


B.Sujatha
Associate Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: From Theory to Practice: Experimental Study of Power Converters

Faculty Name: Ms.Banka.Sujatha **Class: IV-I / EEE**

Academic Year: 2025-2026

Subject Name: Simulation of Renewable Energy Systems Lab (SRES Lab)

Topic: Practical Analysis of Modern Power Electronic Converters

Date: 01/11/2025 to 18/11/2025

No. of Students participated: 69

Brief Write-up :

As part of a simulation-based learning activity, students explored the modeling and analysis of **solar, wind, and hybrid renewable energy systems** using **MATLAB** and **Simulink**. Students were divided into **17 batches (project groups)** and assigned various topics related to photovoltaic systems, wind energy conversion systems, and power electronic converters.

Each group developed simulation models, analyzed system performance, and presented their findings through presentations and explanatory videos. Students also **submitted project documentation along with simulation models**. Since these students are working on their **major projects across two semesters**, this activity provided valuable **technical exposure and practical experience**, supporting their project development and understanding of renewable energy systems.

Objectives

1. To understand the **concept and operation of solar, wind, and hybrid renewable energy systems**.
2. To develop **practical knowledge of power electronic converters used in renewable energy applications**.
3. To provide **hands-on experience in modeling and simulation using MATLAB/Simulink**.
4. To enhance **analytical, problem-solving, and technical presentation skills**.
5. To support students in **developing ideas and technical understanding for their major projects**.

Methodology

1. Students were divided into **17 project batches**, aligning with their major project groups.
2. Each batch was assigned a **specific simulation topic related to renewable energy systems or power electronic converters**.
3. Students developed and tested **simulation models using MATLAB/Simulink**.

4. The groups analyzed simulation results and identified important **operational characteristics and observation points**.
5. Each batch prepared **presentations, explanatory videos, and project documentation**, which were submitted along with their **simulation models**.

Outcomes

1. Students gained **practical exposure to simulation and modeling of renewable energy systems**.
2. Improved understanding of **solar PV systems, wind energy converters, and power electronic interfaces**.
3. Enhanced **technical presentation, documentation, and teamwork skills**.
4. Students developed **stronger conceptual clarity useful for their major projects conducted over two semesters**.
5. The activity provided **industry-relevant exposure and improved readiness for project development and technical interviews**.

S.No	Batch	Roll No	Name of the Student	Project Title
1	2022_1	22WH1A0201	Ms. POLKAM LAHARI	Implementation of 3 MW Solar Power Plant in MATLAB/Simulink
2		23WH5A0217	Ms. G SAI KEERTHANA	
3		22WH1A0219	Ms. SADANAVENI RISHITHA	
4		22WH1A0206	Ms. D.APARANJANI REDDY	
5	2022_2	23WH5A0212	Ms. C AISHWARYA	Fuzzy Triangle Function for Solar Irradiation
6		23WH5A0208	Ms. KATAKAM SRIVANI	
7		23WH5A0221	Ms. S HARINI	
8		22WH1A0228	Ms. VADDE SASHUSHMA	
9	2022_3	23WH5A0216	Ms. CHIPPA MANASA	Design of a Hybrid Fuel Cell–Battery System
10		22WH1A0241	Ms. ALUSA SRIJA	
11		22WH1A0202	Ms. RATHOD KEERTHI	
12		22WH1A0212	Ms. J.BHAVYA SREE	
13	2022_4	22WH1A0238	Ms. KOTTE SADHVI SREE	Simulation and Analysis of a Multilevel Inverter for Power Electronics Applications.
14		22WH1A0211	Ms. R.GAYATHRI	
15		22WH1A0204	Ms.BUDUTHA MAMATHA	
16		22WH1A0224	Ms. SIPANI PRATHUSHA	
17	2022_5	22WH1A0234	Ms. KADARLA AISHWARYA	Simulation of a Battery Voltage Charge Controller in a Renewable Energy System
18		23WH5A0206	Ms. VANKUDOTHI JAYASRI	
19		22WH1A0245	Ms. S.HASINI	
20		22WH1A0214	Ms. LAKAVATH SHAILU	
21	2022_6	23WH5A0205	Ms. BODIGE MEGHANA	MPPT with PMSG based Wind Energy Conversion system
22		22WH1A0233	Ms. LANDE NIHARIKA	
23		23WH5A0215	Ms. NERELLA CHANDHANA	

24		22WH1A0227	Ms. P.CHARISHMA	
25	2022_7	22WH1A0205	Ms. SRI PRIYA RATHOD	Hybrid Renewable DC Microgrid with PV, Wind, and Battery Backup
26		22WH1A0218	Ms. N.JANANI	
27		22WH1A0215	Ms. SANAGA JESSI ELINA	
28		22WH1A0209	Ms. SRIGIRI ADVAITHA	
29	2022_8	23WH5A0213	Ms. REGULA ANJALI	Implementation of Efficient Vehicle to Grid and Grid to Vehicle Technology
30		22WH1A0221	Ms. N.S.D. HARSHITHA	
31		22WH1A0222	Ms. JONNANA POOJITHA	
32		22WH1A0239	Ms. CH. SUSHMITHA	
33	2022_9	22WH1A0237	Ms. MADDUR NIKHITHA	photovoltaic power generation system for home
34		22WH1A0247	Ms. R.AVANTHI	
35		22WH1A0203	Ms. M.CHATURYA CHOWDARY	
36		22WH1A0220	Ms. AJMEERA VIKSHITHA	
37	2022_10	23WH5A0214	Ms. BAIRI CHANDANA	Simulation Of Buck Boost Bidirectional Converter
38		23WH5A0218	Ms. KUDIKALA JOSHIKA	
39		22WH1A0236	Ms. CH.NAVYA SRI	
40		22WH1A0246	Ms. RANGU SRIVANI	
41	2022_11	23WH5A0203	Ms. ADLA ABHINAYA	Grid Connected PV Array
42		22WH1A0249	Ms. GUNDU TRIVENI	
43		23WH5A0210	Ms. RAMAGIRI GREESHMA	
44		22WH1A0242	Ms. MACHA SHIVA DEEPIKA	
45	2022_12	23WH5A0204	Ms. NERELLA SNEHALATHA	AC-Bus Coupled Solar-Wind Hybrid Generation System
46		23WH5A0207	Ms. KANAKAM VAHINI	
47		22WH1A0248	Ms. LINGAMPETA NISHITHA	
48		22WH1A0213	Ms. NASREEN FATHIMA	
49	2022_13	22WH1A0225	Ms. CH.KEERTHANA	Simulink Model of Wind turbine based AC to DC Converter
50		22WH1A0229	Ms. GORIGE AISHWARYA	
51		22WH1A0232	Ms. K.MAHIMA	
52		22WH1A0208	Ms.GUNDE SREEJA	
53	2022_14	23WH5A0202	Ms. CHINDE AISHWARYA	Battery Charging from Solar PV using Buck Converter with MPPT
54		22WH1A0207	Ms. B.LAXMI PRASANNA	
55		22WH1A0216	Ms. DUBBA VANI	
56		22WH1A0231	Ms. UPPALA BRINDA	
57	2022_15	22WH1A0243	Ms. TEJAVATH MANASA	Boost Converter Design for Solar PV Array
58		23WH5A0201	Ms. ALLURI AKSHITHA	
59		23WH5A0220	Ms. PALLE SHRUTHI	

60		22WH1A0240	Ms. DIBBA MOUNIKA	
61	2022_16	22WH1A0235	Ms. BANOTHU DEEPIKA	Single phase stand-alone closed loop PWM inverter
62		22WH1A0217	Ms. R ABHINAYA	
63		23WH5A0209	Ms. KORRA HARSHINI	
64		22WH1A0230	Ms. S.SAI AKSHITHA	
65	2022_17	23WH5A0211	Ms. TOPIYARA BHAVANA	MPPT solar charge controller model
66		22WH1A0210	Ms. G.BHAVANA	
67		22WH1A0223	Ms. POLEPALLY LOHITHA	
68		23WH5A0219	Ms. NOMULA SATHWIKA	
69		22WH1A0244	Ms. REDDY HASWITHA	

Sample of the doc

Solar Power Plant Design on Simulink / MATLAB

Name and Roll No.

Ms. Polkam Lahari (22WH1A0201)

Ms. Guguloth Sai Keerthana (23WH5A0217)

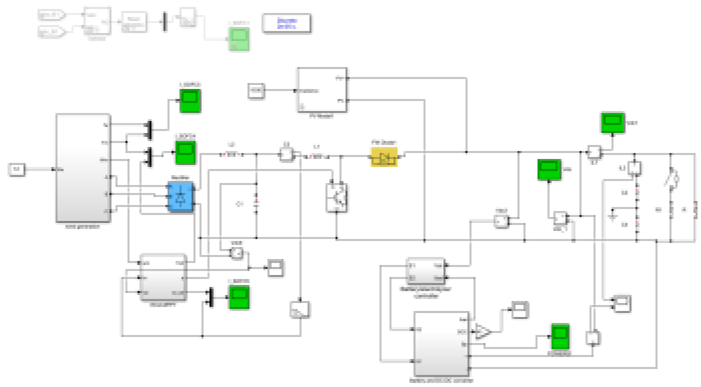
Ms. Sadanaveni Rishitha (22WH1A0219)

Ms. Dakuri Aparanjani Reddy (22WH1A0206)

Description

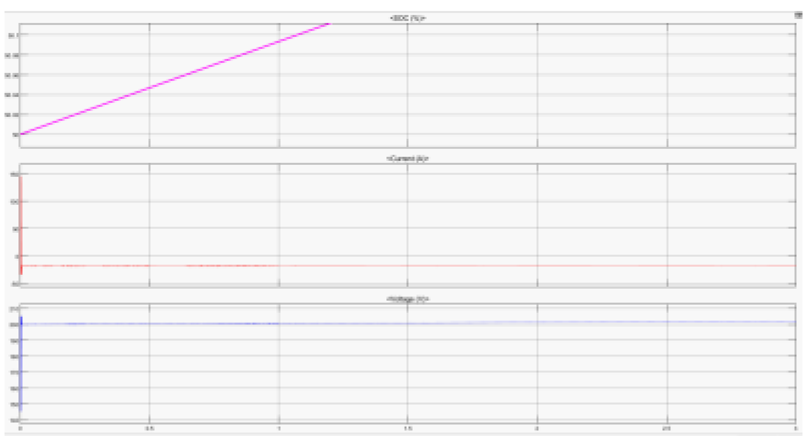
The Simulink model represents a complete grid-connected solar photovoltaic (PV) power plant, designed to study the conversion of solar energy into usable electrical power and its integration with the utility grid. The system begins with a PV array that generates DC power based on varying solar irradiance and temperature. This output is fed to an MPPT (Maximum Power Point Tracking) controller, which continuously adjusts the operating point to extract the maximum possible power from the PV panels. The controlled duty cycle from the MPPT drives a DC–DC boost converter, which steps up the PV voltage and maintains a stable DC link. A DC link capacitor smooths the voltage and reduces ripples before supplying the voltage source inverter (VSI). The inverter converts the regulated DC power into synchronized AC power using PWM switching and injects it into the grid through an LC/LCL filter that removes high-frequency harmonics. Finally, the grid or connected load receives clean sinusoidal AC power. The model helps analyze PV performance under changing weather conditions, inverter behavior, grid interaction, and overall power quality.

MATLAB Model:



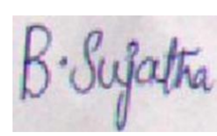
Output Waveforms:

BatteryVoltage and Current



<u>Drive link:</u>

<u>https://drive.google.com/drive/folders/1U2mtFB0Hw6PmYAdlmQluEvh_UCIOlZ9q?usp=sharing</u>



B.Sujatha
Associate Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronic Engineering

Activity: Online Interactive Quiz using Mentimeter

Faculty Name: Dr C.Venkata Subba Reddy

Class: II – I / EEE

Academic Year: 2025-26

Subject Name: Electrical Machines-I

No. of Participants: 38

Date: 26-11-2025

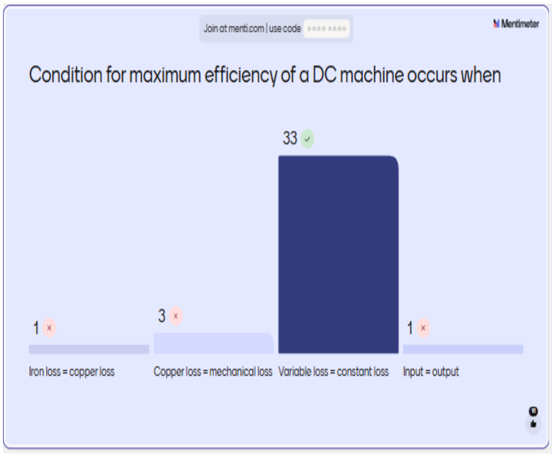
Brief Write - Up

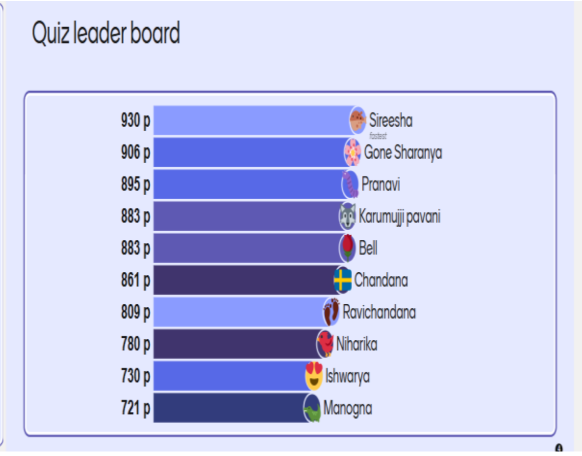
An online live interactive quiz was conducted using the Mentimeter platform to assess the understanding level of students in the subject Electrical Machines-I. The quiz included questions related to important topics such as DC generators, DC motors, testing of DC machines, transformer operation, transformer performance parameters, and different poly phase transformer connections.

Students actively participated in the quiz using their mobile devices and responded to questions in real time. The Mentimeter platform displayed instant results and rankings, which created a competitive and engaging learning environment. The top ten performers were displayed on the leader board, which motivated students to participate enthusiastically.

The activity helped students revise key concepts of electrical machines and provided immediate feedback on their level of understanding. The interactive nature of the quiz made the learning process more effective and enjoyable.

Photo(s):





Impact: The activity improved students' conceptual understanding of DC machines and transformers. It also enhanced student engagement, encouraged active participation, and helped students quickly assess their knowledge of fundamental electrical machine concepts.

CO-PO Attainment

CO	Description	PO Mapping
CO1	Understand the construction and operating principles of DC generators	PO1, PO2
CO2	Analyze the characteristics and performance of DC generators	PO1, PO2
CO3	Understand the working principles and characteristics of DC motors	PO1, PO2
CO4	Understand testing methods and performance analysis of DC machines and transformers	PO1, PO2

Justification:
The interactive quiz evaluated students' understanding of fundamental concepts related to DC machines and transformers, thereby supporting the attainment of CO1–CO4 and strengthening engineering knowledge (PO1) and problem analysis skills (PO2).

Faculty Sign

BVRIT HYDERABAD College of Engineering for Women
Department of Electrical and Electronics Engineering

Name of the Activity: Digital Simulation of Power Converter Topologies

Subject Name:Power Electronics

Faculty Name: Dr.K.Bhavya

Topic: Converters in Power Electronics

Date of Conduction: 16-10-2025

Class / Year / Semester: EEE/ III / I Sem

Brief Write-up:

Digital simulation of power converter topologies involves modeling and analyzing Power Electronic converter circuits using computer-based tools before implementing them in hardware. Converters such as AC–DC rectifiers, DC–DC converters, DC–AC inverters, and AC–AC converters are widely used in applications like renewable energy systems, electric vehicles, power supplies and motor drives.Simulation tools such as MATLAB/Simulink, PSIM, PLECS, and LTspice help engineers study converter behavior under different operating conditions. Parameters like output voltage, current waveforms, efficiency, switching characteristics, and transient response can be analyzed effectively. It also enables testing of various control strategies and switching techniques.Digital simulation reduces the need for early hardware development, saving time and cost. Designers can simulate and compare converter topologies such as Buck, Boost, Buck–Boost, and full-bridge converters to select the most suitable design. Overall, it provides a safe, flexible, and efficient platform for designing and optimizing power electronic systems.

Preparation / Prerequisites:

Students should have basic knowledge of power electronics and electrical circuits. Familiarity with semiconductor devices such as diodes, MOSFETs, and IGBTs, as well as basic understanding of AC–DC, DC–DC, and DC–AC converters will be helpful. Basic exposure to simulation tools like MATLAB/Simulink or any circuit simulation software and fundamental concepts of control systems and electrical measurements will enable participants to better understand and implement digital simulations of power converter topologies.

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Rules Executed:

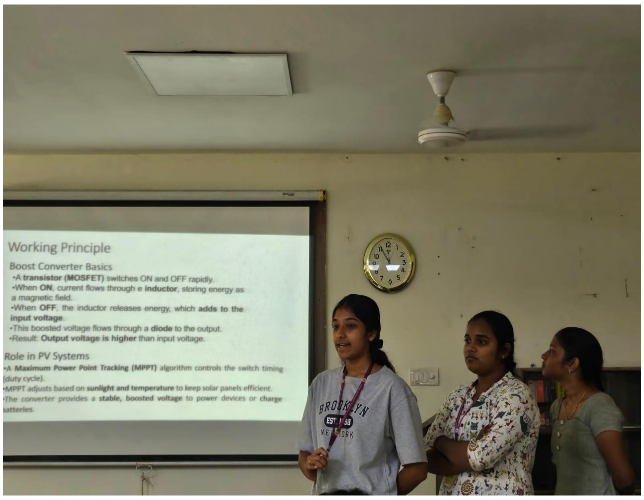
- Students were instructed to select a power converter topology such as AC–DC rectifier, DC–DC converter, DC–AC inverter, or AC–AC converter for simulation.
- The simulation of the selected converter was carried out using MATLAB/Simulink.
- Each student (or group) was required to design the converter model, including appropriate components such as switches, diodes, filters, and loads.
- The simulation results such as input voltage, output voltage, current waveforms, and performance characteristics were to be obtained and analyzed.
- Students were instructed to prepare a PowerPoint presentation explaining:

    - ✓ Converter topology and working principle
    - ✓ MATLAB/Simulink model
    - ✓ Simulation parameters used
    - ✓ Output waveforms and results

- Each student/group presented their simulation work in the classroom presentation session.
- The activity was evaluated based on accuracy of the model, clarity of explanation, simulation results, and presentation quality.
- Students were required to submit the MATLAB model file and presentation slides for record and evaluation.

No.of Students Participated: **69**

Photos:



Dr.K.Bhavya
Assistant Professor
EEE Department

BVRIT HYDERABAD College of Engineering for Women
Department of Electrical and Electronics Engineering

Name of the Activity: Performance Analysis of Power Semiconductor Devices and Converter Topologies

Subject Name:Power Electronics Laboratory

Faculty Name: Dr.K.Bhavya

Topic: Modeling and control of different converters with different software

Date of Conduction: 24-10-2025

Class / Year / Semester: EEE/ III / I Sem

Brief Write-up:

The Power Electronics Laboratory activity was conducted to help students understand the operation and analysis of various power electronic devices and converter circuits using simulation tools. In this activity, students performed simulations of different power electronic circuits such as rectifiers, DC–DC converters, inverters, and power supply circuits using software tools like LTSpice, Multisim, and MATLAB/Simulink.Students simulated circuits including Boost Converter, Buck Converter, Buck–Boost Converter, Bridge Rectifier, Half-wave and Controlled Rectifiers, Half-Bridge Inverter, and PWM generation circuits. In addition, students studied the V–I characteristics of power semiconductor devices such as SCR, IGBT, and PN junction diode through simulation.The activity also included application-oriented simulations such as solar power generation systems, battery charging circuits using DC–DC converters and inverter design for domestic applications. Students analyzed important parameters such as voltage and current waveforms, switching characteristics, and converter performance.

This activity helped students understand the practical behavior of power electronic circuits and strengthened their ability to design and analyze converters using simulation tools. It also improved their skills in interpreting simulation results and relating them to theoretical concepts learned in the classroom.

Preparation / Prerequisites:

Students should have basic knowledge of power electronics and electrical circuits. Understanding of semiconductor devices such as diodes, SCRs, MOSFETs, and IGBTs, as well as the working principles of rectifiers, DC–DC converters, and inverters, is required. Students should also have basic familiarity with simulation tools such as LTSpice, Multisim, and MATLAB/Simulink to implement and analyze the power electronic circuits effectively.

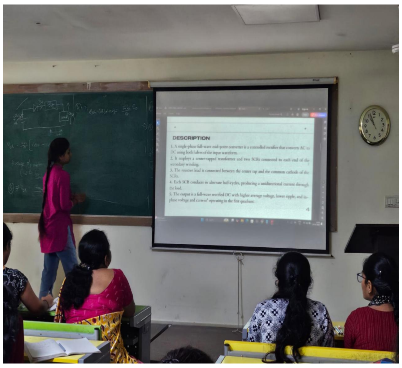
Rules Executed:

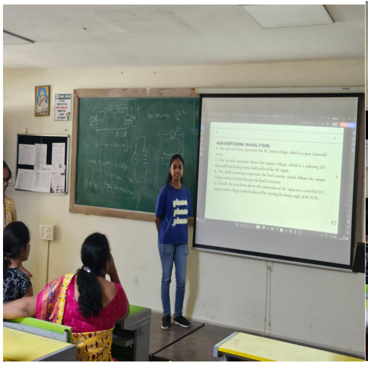
• Students were formes as a batch and instructed them to select one of the given Power Electronics simulation topics.
• The circuit design and simulation were carried out using LTSpice, Multisim, or MATLAB/Simulink.
• The input and output waveforms such as voltage, current, and switching signals were observed and analyzed.
• Students studied the operating principles of the selected power electronic circuit.
• The simulation results were recorded and compared with theoretical concepts learned in the course.
• Students prepared a presentation explaining the circuit design, working principle, simulation

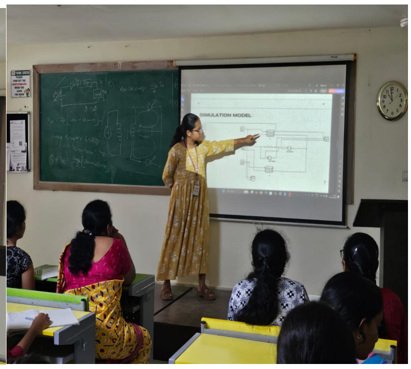
procedure, and results.
• Each group presented their work during the laboratory activity session.
• The activity was evaluated based on circuit design, correctness of simulation, waveform analysis, and presentation clarity.

No.of Students Participated: **69**

Photos:







Dr.K.Bhavya
Assistant Professor
EEE Department

(Format 4: Activities and ICT tools)

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Project based Learning

Faculty Name: Dr. R. Manojkumar
Class: II–I / ECE-A
Academic Year: 2025–26
Subject Name: Network Analysis and Synthesis
Topic: Modeling and Simulation of RLC Resonance and First-Order Circuit Responses Using Python
Date: 29/11/2025
Write-up: Simulation-based learning was conducted to help students understand the dynamic behavior of electrical circuits using computational tools. In this activity, students developed Python-based models to simulate RLC resonance and the transient response of first-order circuits such as RC and RL networks. The simulation environment enabled students to visualize voltage and current waveforms, analyze resonance conditions, and study the impact of component variations on circuit response. Through hands-on programming and graphical analysis, students gained deeper insight into theoretical concepts and improved their problem-solving and analytical skills.

No. of Students Participated: 64

Photos:

Project Title:
Modeling and Simulation of RLC Resonance and First-Order Circuit Responses with Python
Objective:
The project aims to:

1. Analyze series and parallel resonance circuits.
2. Solve differential equations for series RL and RC circuits with a step input.

Parameter Assignment

- **Roll Number-Based Values**: Each student will extract the values of R, L, and C from their roll numbers as follows and then execute following parts based on those values.
  - **R**: First two digits of the roll number.
  - **L**: last three digits (in mH).
  - **C**: Last three digits reversed (in mF).

For example, for roll number *23WH1A0205*,

- **R** = 23 Ω,
- **L** = 205 mH,
- **C** = 502 mF.

Part 1: Resonance Analysis of RLC Circuit Using Python (2 M)

- **Series Resonance**:
  - Plot the frequency response (impedance vs frequency) and identify the resonant frequency.
- **Parallel Resonance**:
  - Similarly, analyse the parallel RLC circuit and plot the impedance vs frequency graph

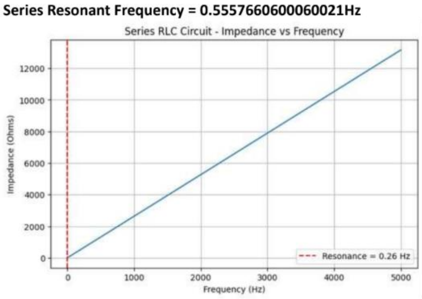
Part 2: Response of Series RL and RC Circuits Using Python (1 M)

1. **RL Circuit:**
   - Solve the differential equation and plot the time response of the voltage across inductor for a step input. Determine the time constant.
2. **RC Circuit:**
   - Solve the differential equation and plot the voltage across the capacitor over time. Determine the time constant.

Note: Submit all the parts in a single pdf through the Google form that will be shared to you soon.

Timestamp	Registration Number	Upload the solution pdf of Activity (only pdf type is allowed)
11/29/2025 11:07:08	24WH1A0401	https://drive.google.com/open?id=1SlP0mOJdwtsBMcgI6TMS74yy6BsNw-xy
11/29/2025 22:51:23	24WH1A0402	https://drive.google.com/open?id=1L92K4-fXGuedNZELwnYa-HYq9mI9MspD
11/29/2025 18:58:45	24WH1A0403	https://drive.google.com/open?id=1RpkLinzOKDdBeTaW9Jqs98YQOXqRS-bl
11/29/2025 10:06:25	24WH1A0404	https://drive.google.com/open?id=118diZm6yPDgChmQ8NQR_hgRh_sb48qgl
11/29/2025 20:13:11	24WH1A0405	https://drive.google.com/open?id=1-FO7BEpJ72ByCGmNVrYbSsabX-D5-s7b
12/1/2025 7:29:24	24WH1A0407	https://drive.google.com/open?id=1acowhT2OQksV3UPCpzGaOoHvEYbDTu4h
11/29/2025 15:43:39	24WH1A0408	https://drive.google.com/open?id=1zjiOprx1HzO71dLi87_fDwAwXz68Kn57
11/29/2025 21:14:49	24WH1A0409	https://drive.google.com/open?id=1hRSI7sH9ceCHdSUkm_LDMSrAraXsbheR
11/29/2025 10:08:56	24WH1A0410	https://drive.google.com/open?id=1Tbs1gQeFi7Ee-UpH_U2oDdodIZn00nhy
11/30/2025 10:03:11	24WH1A0413	https://drive.google.com/open?id=1lLZxBQFLWFC1JnMQt9O61nPqEhqVBWVb
11/30/2025 8:28:57	24WH1A0415	https://drive.google.com/open?id=1c-P9rMVAfjR3HdeUee2uPe8OXyClz5Ir
11/29/2025 10:58:31	24WH1A0416	https://drive.google.com/open?id=1PAP_rvKfCRbX9sGeqYjQF_9HmqkUnTLp
11/29/2025 10:09:41	24WH1A0418	https://drive.google.com/open?id=1x9ZP8SDXO4xCxxsHuVus7GWKrF1FWUof

Series Resonant Frequency = 0.5557660600060021Hz



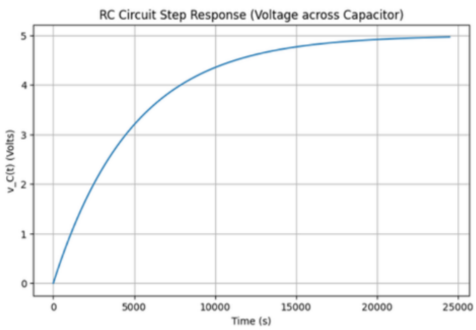
Parallel Resonance:

Similarly, analyse the parallel RLC circuit and plot the impedance vs frequency graph

```
import numpy as np import matplotlib.pyplot as plt
    R = 24
    L = 0.402
    C = 0.204
    f = np.linspace(1, 5000, 20000)
    w = 2 * np.pi * f
    Y = np.sqrt((1/R)**2 + (w*C - 1/(w*L))**2)
    Z_parallel = 1 / Y

Vs = 5
tau_RC = R*C
print("RC Time Constant =", tau_RC, "seconds")
t = np.linspace(0, 5*tau_RC, 500)
v_C = Vs * (1 - np.exp(-t / tau_RC))
plt.figure(figsize=(8,5))
plt.plot(t, v_C)
plt.title("RC Circuit Step Response (Voltage across Capacitor)")
plt.xlabel("Time (s)")
plt.ylabel("v_C(t) (Volts)")
plt.grid(True)
plt.show()
```

RC Time Constant = 4896 seconds



R. Manojkumar

Faculty Sign

(Format 4: Activities and ICT tools)

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

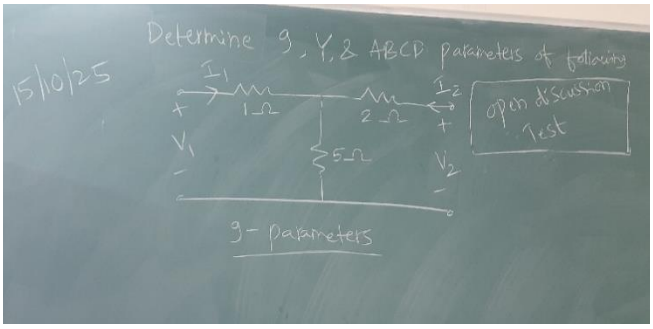
Name of the Activity: Open Discussion Test

Faculty Name: Dr. R. Manojkumar
Class: II–I / ECE-A
Academic Year: 2025–26
Subject Name: Network Analysis and Synthesis
Topic: Determination of g, Y and ABCD Parameters of Two-Port Network
Date: 15/10/25

Write-up: An open discussion test was organized to strengthen students' understanding of two-port network parameters and their practical significance in circuit analysis. Students discussed and analyzed the procedure for determining transmission parameters such as g, Y, and ABCD using open-circuit test conditions. The activity focused on explaining circuit relationships, parameter derivations, and their applications in communication and power systems. To reinforce the concept further, the same problem discussed during the activity was later given as a one-mark assignment question so that students could individually apply the discussed methodology and verify their understanding.

No. of Students Participated: 64

Photos:



BVRIT HYDERABAD COLLEGE OF ENGINEERING FOR WOMEN

Nizampet Road, Opp: Rajiv Gandhi Nagar Bus Stop, Bachupalli, Hyderabad – 500090.

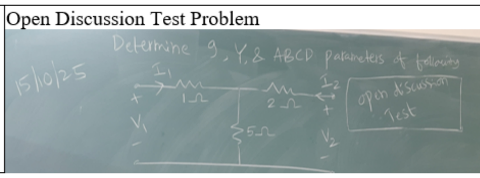
II B.Tech I Sem (BH23) Assignment – 2

Subject: NAS Branch: ECE A

Max Marks: 5 M.

2025-26

Answer All Questions

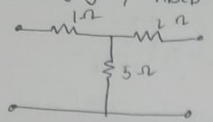
Q. No.	Question	Course outcomes	Blooms level	Marks
1.	Open Discussion Test Problem 	**C303.3**	Apply	**1**
2.	Write down the restrictions on pole and zero locations for driving-point functions with common factors in n(s) and d(s) cancelled and give an example with justification.	**C303.6**	Understand	**1**

Timestamp	Registration Number	Upload the solution pdf of Assignment-2 (only pdf type is allowed)
11/29/2025 11:08:04	24WH1A0401	https://drive.google.com/open?id=1eR41JpoKUhCyBQjcc8l5VyVW5Hcp2Hlw
11/29/2025 22:48:20	24WH1A0402	https://drive.google.com/open?id=1BV9chQfm7f09oHauA29-PSBMg6YKo6n3
11/30/2025 11:41:38	24WH1A0404	https://drive.google.com/open?id=1AMJrf4EqNCtp_5uP36sU7mPllerfTTEm
12/1/2025 7:30:34	24WH1A0407	https://drive.google.com/open?id=1z8ylFCqlSuGc0ZmW_Ueb5gi1JLIZpFmM
11/29/2025 10:38:08	24WH1A0409	https://drive.google.com/open?id=13MRMKCoiPZavkBTBxkWNYHK5KCzpa2uE
11/29/2025 10:09:40	24WH1A0410	https://drive.google.com/open?id=1k6Vf_SFxBuh_MnfU4pE7c-sX4kSzWbgW
11/29/2025 10:12:34	24WH1A0411	https://drive.google.com/open?id=1Gy6OBFcIEbwJSv_fdd4Am8DgYFZsWXYL
11/29/2025 21:59:19	24WH1A0412	https://drive.google.com/open?id=1icRsdVHKP_wv0mTyG-ZG8UqBs8jZTsI_
11/30/2025 10:11:59	24WH1A0413	https://drive.google.com/open?id=1f0ZZlvZIJpJvBmTO2eR9WYY5kkjGHw6d
12/3/2025 21:42:53	24wh1a0414	https://drive.google.com/open?id=1edKAOxzBO9hhX-5p2PJNDEgR1gXL-UU_
11/29/2025 20:43:08	24WH1A0415	https://drive.google.com/open?id=1qQTA_UENhMTHP3OYPVoLduodYRl0R7Ty
11/30/2025 9:15:53	24WH1A0416	https://drive.google.com/open?id=1OijQrGZbwobR08rXN9uvfQM-ZKLVpXmw
12/3/2025 17:21:02	24WH1A0417	https://drive.google.com/open?id=16_4LsZM82iye4N65VSmO24QOK236-g6z

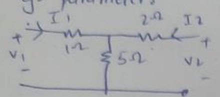
Assignment - II

N. Lalitha 24WH1A0402

1. Determine g, y & ABCD parameters of following circuit



g- parameters:-



$I_1 = g_{11}V_1 + g_{12}I_2$

$V_2 = g_{21}V_1 + g_{22}I_2$

Apply KVL in mesh 1

$-V_1 + I_1(1) + (I_1 + I_2)5 = 0$

$V_1 = 6I_1 + 5I_2$ — (1)

mesh 2 $-V_2 + I_2(2) + (I_2 + I_1)5 = 0$

$V_2 = 5I_1 + 7I_2$ — (2)

from (1) $\frac{V_1}{6} - \frac{5I_2}{6} = I_1$ — (3)

R. Manojkumar

Faculty Sign

(Format 4: Activities and ICT tools)

BVRIT HYDERABAD College of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Simulation based Learning

Faculty Name: Dr. R. Manojkumar & Dr. C. Krishna Reddy
Class: II–I / EEE
Academic Year: 2025–26
Subject Name: Electrical Simulation Tools Lab
Topic: Modeling and Simulation of Circuits using LTSpice
Date:
Write-up: A simulation-based laboratory activity was conducted to familiarize students with circuit modeling and analysis using LTSpice software. Students designed and simulated various electrical circuits, including resistive networks and basic analog circuits, to observe voltage, current, and waveform characteristics. The activity enabled students to understand practical circuit behavior, perform transient and steady-state analysis, and verify theoretical results through simulation. By using LTSpice as an industry-relevant simulation tool, students developed practical skills in circuit design, troubleshooting, and result interpretation.

No. of Students Participated: 45

Photos:

Timestamp	Email Addr	Score	ROLL NO	NAME	PROJECT TITLE	REPORT IN PDF FORMAT
11/15/2025 19:25:34	24wh1a0201@b	0 / 10	24WH1A0201	Shrenima Singh	LTSPICE CIRCUIT SIMULATION REPORT	https://drive.google.com/open?id=1kffAafhf0N6__ZLaUgR_3yzSAB9iMj_l
11/16/2025 22:36:21	24wh1a0203@b	0 / 10	24WH1A0203	P. Niharika	Analysis of a Dependent-Source Network U	https://drive.google.com/open?id=1uyEBHBBKcikQ3pGRR9BkjGzhRJLwau93
11/16/2025 19:33:45	24wh1a0204@b	0 / 10	24wh1a0204	a.shirisha	output voltage analysis at node2 using LTsp	https://drive.google.com/open?id=1lwBWeLBFklHeAhvVNisMGlGY49OZwCcS
11/16/2025 0:09:59	24wh1a0205@b	0 / 10	24WH1A0205	G.Laxmi	Simulation of multisource resistive electrica	https://drive.google.com/open?id=1iAoBpD0614Y_VaE2CgUzr0bA0dQGlFfG
11/16/2025 22:05:59	24wh1a0206@b	0 / 10	24WH1A0206	GORIJAVOLU SA	Simulation of Triangular Current Waveform	https://drive.google.com/open?id=1IzygF5Vcw6Bqm9oMttyQDpXWbTYD6q7W
11/15/2025 21:56:29	24wh1a0207@b	0 / 10	24WH1A0207	Madugula Keert	Computation of Node Voltages and Branch	https://drive.google.com/open?id=1YsGxq3X8kJ8slIX0zBrk3cZJ_ftIo55T
11/15/2025 21:41:24	24wh1a0208@b	0 / 10	24WH1A0208	B. JOSHITHA	Simulation of a Transient Analysis of a Sec	https://drive.google.com/open?id=1flsQEbRrLvbfTn01yitviE5XHYmXZKbA
11/17/2025 11:54:01	24wh1a0210@b	0 / 10	24WH1A0210	C.ManiHarika	RLC CIRCUIT	https://drive.google.com/open?id=1xq7BqRaU4Sw5eYyGbnU9_e13Zqq8TxrR
11/13/2025 22:21:33	24wh1a0212@b	0 / 10	24WH1A0212	DASARI SUBBA	The first-order RC circuit	https://drive.google.com/open?id=1kP_jRs4Fek-QQj0eMLHbbD-8RbKDVJcl
11/17/2025 13:56:23	24wh1a0213@b	0 / 10	24WH1A0213	G.Arthi	Simulation of a Triangular Current Source U	https://drive.google.com/open?id=13uDiusmJOlqsaDOWN5mE1l_huaC_6iDK
11/15/2025 23:59:55	24wh1a0214@b	0 / 10	24WH1A0214	G.Sony	Transient Response of Series RLC Circuit fo	https://drive.google.com/open?id=19e_VnVYM2WtsMLFad69837Rjj2Mw4-Iq
11/16/2025 23:08:23	24wh1a0217@b	0 / 10	24WH1A0217@	Priya Darshini	Series RLC Band pass filter	https://drive.google.com/open?id=1mTwc1poUKO3PleOScuZjnQ5LQVXaAPxO

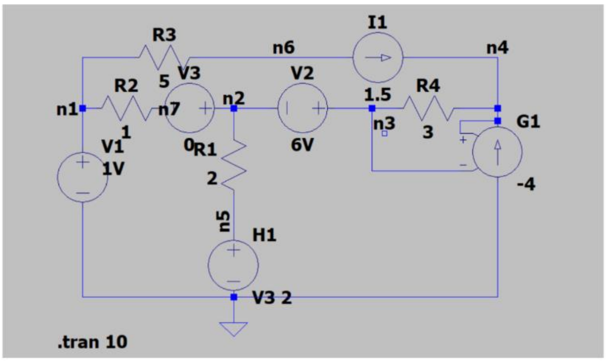


Figure 1: LTSpice schematic screenshot

3. Results

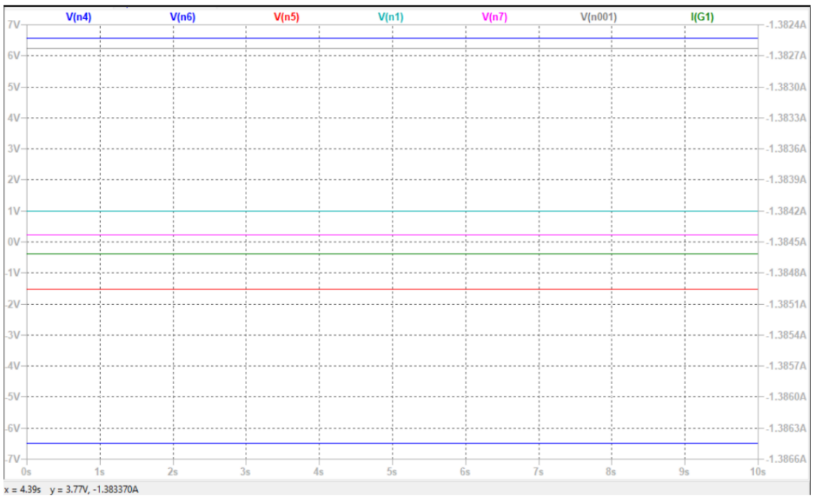


Figure 2: LTSpice transient plot (0–10 s) showing traces: V(n4) (blue), V(n6) (dark blue), V(n5) (red), V(n1) (cyan), V(n7) (magenta), V(n001) (green) and I(G1) (green on right axis).

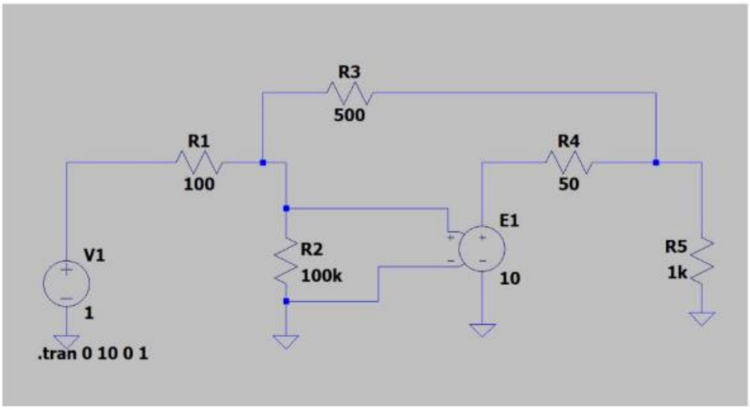
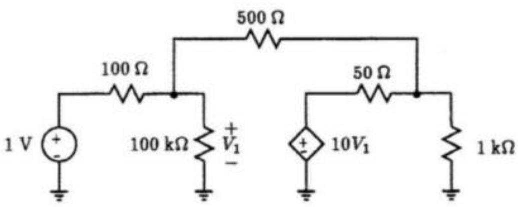
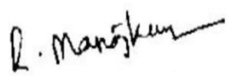


Figure 1. LTspice schematic of the simulated circuit.





Faculty Sign

BVRIT HYDERABAD Colege of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: LMS-Based Unit-Wise Quizzes in Moodle

Faculty Name: Dr.Chava Sunil Kumar, Professor, EEE Department

Class: IV-II / EEE

Academic Year: 2025-2026

Subject Name: Electrical Distribution Systems

Topics: Unit-I, Unit-II, Unit-III, Unit-IV, Unit-V of EDS

Dates: 17/02/2026,18/02/2026,16/04/2026,17/04/2026, 17/04/2026

No. of Students participated: 69

https://www.vishnulearning.com/course/view.php?id=33859

Course Objectives:

CO No.	Statement	Bloom's level
C427.1	Assess characteristics and various factors for different types of loads	Apply
C427.2	Classify distribution feeders based on design considerations.	Analyze
C427.3	Compute the rating of substation under specified constraints related to distribution systems.	Analyze
C427.4	Categorize various protective devices and their coordination.	Apply
C427.5	Estimate the line drop and power factor in distribution systems.	Apply
C427.6	Assess the type of capacitor and suitable location for voltage control and its regulation.	Apply

CO-PO,PSO Mapping Table

ELECTRICAL DISTRIBUTION SYSTEMS(EDS)														
Course Outcomes	Program Outcomes (PO)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C427.1	3	2	1	1	1	1	2	1	2	2	2	2	2	2
C427.2	3	3	2	2	1	1	1	1	2	2	1	1	1	1
C427.3	3	2	-	-	-	-	1	1	-	-	2	1	1	3
C427.4	3	2	1	1	1	1	-	1	-	-	1	1	1	3
C427.5	3	3	3	2	2	2	1	1	-	-	2	2	2	2
C427.6	3	3	2	1	1	1	1	1	-	-	2	2	2	2
Mean	*3*	*2.5*	*1.8*	*1.4*	*1.2*	*1.2*	*1.2*	*1*	*2*	*2*	*1.66*	*1.5*	*1.5*	*2.166*

To assess students' understanding of each unit and reinforce learning through structured online quizzes.

Description of the Activity:

Unit-wise quizzes and Mid-I/Mid-II preparation quizzes were conducted using the Moodle LMS platform. These quizzes were designed to test key concepts from each chapter.
These assessments enhanced **conceptual clarity, analytical skills, and exam readiness**.

- **Quiz Format:**

Multiple-choice questions (MCQs) with autograding and instant feedback.

- **Coverage:** Unit-wise quizzes mapped to C427.1- C427.6
- **Execution:**

Each quiz was time-bound and randomized.
Students could review explanations after completion.
Attempts were monitored via LMS logs.

Justification:

These formative assessments helped in continuous evaluation, improved exam readiness, and allowed early identification of learning gaps.

Outcome:

- Improved quiz scores in successive attempts.
- Better performance in mid exams due to regular practice.
- Increased student confidence and engagement.

Key Benefits of Conducting Online Quizzes in Moodle

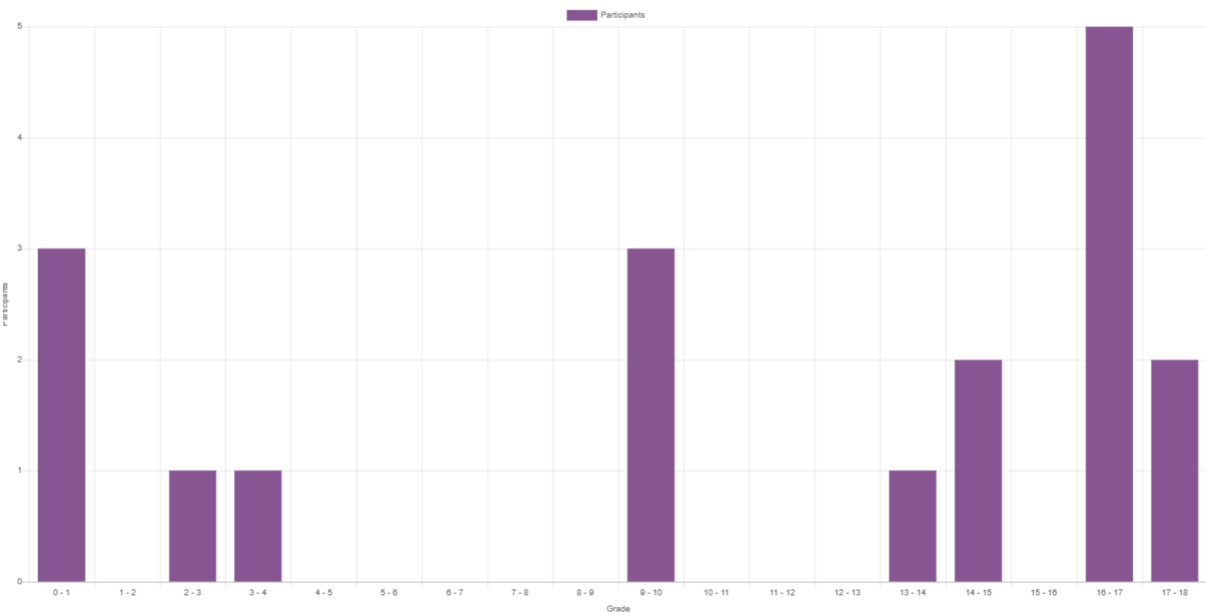
1. Remote Participation: Students can take the quiz from any location, promoting flexibility and accessibility.

2.Large-Scale Engagement: Allows a large number of students to participate simultaneously without compromising system performance. **3.Randomized Content Delivery:** Questions and options are randomized to reduce the risk of academic dishonesty.

4.Immediate Feedback: Students receive instant results along with correct answers, facilitating self-assessment and learning.

5.Real-Time Performance Analysis: Instructors can instantly access quiz analytics to gauge student understanding and adjust instruction accordingly.

First name / Surname	Email address	State	Started on	Completed	Time taken	Grade/18	Q. 1 /0	Q. 2 /0	Q. 3 /0	Q. 4 /0	Q. 5 /0	Q. 6 /0	Q. 7 /0	Q. 8 /0	Q. 9 /0	Q. 10 /0	Q. 11 /5	Q. 12 /0	Q. 13 /0	Q. 14 /0	Q. 15 /0	Q. 16 /0	Q. 17 /7	Q. 18 /0
CHANDANA B Review attempt	23wh5a0214@bvrithyderabad.edu.in	Finished	16 February 2026 5:56 PM	16 February 2026 5:57 PM	1 min 24 secs	14	✘ 0	✔ 0	✘ 0	✘ 0	✘ 0	✔ 0	✘ 0	✔ 0	✘ 0	✘ 0	✔ 5	✔ 0	✔ 0	✘ 0	✔ 0	✘ 0	✔ 7	✔ 0
MOUNIKA DIBBA Review attempt	22wh1a0240@bvrithyderabad.edu.in	Finished	16 February 2026 8:13 PM	16 February 2026 8:31 PM	18 mins 42 secs	16	✔ 0	✔ 0	✘ 0	✔ 0	✘ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 5	✔ 0	✔ 0	✘ 0	✔ 0	✘ 0	✔ 7	✔ 0
MAMATHA BUDUTHA Review attempt	22wh1a0204@bvrithyderabad.edu.in	Finished	16 February 2026 10:38 PM	16 February 2026 10:48 PM	9 mins 39 secs	17	✔ 0	✔ 0	✔ 0	✔ 0	✘ 0	✔ 0	✔ 0	✔ 0	✔ 0	✘ 0	✔ 5	✔ 0	✔ 0	✔ 0	✘ 0	✔ 0	✔ 7	✔ 0
SREESHA DURGA HARSHITHA NAKKA Review attempt	22wh1a0221@bvrithyderabad.edu.in	Finished	16 February 2026 11:09 PM	16 February 2026 11:12 PM	2 mins 20 secs	1	✘ 0	✔ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✔ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0	✘ 0
AVANTHI RALLABANDLA Review attempt	22wh1a0247@bvrithyderabad.edu.in	Finished	16 February 2026 11:42 PM	16 February 2026 11:47 PM	4 mins 57 secs	9	✔ 0	✔ 0	✘ 0	✔ 0	✘ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 5	✔ 0	✔ 0	✔ 0	✘ 0	✘ 0	✘ 0	✔ 0
PRIYA RATHOD SRI Review attempt	22wh1a0205@bvrithyderabad.edu.in	Finished	16 February 2026 11:52 PM	16 February 2026 11:57 PM	4 mins 36 secs	10	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 0	✔ 5	✔ 0	✔ 0	✘ 0	✘ 0	✘ 0	✘ 0	✔ 0
TRIVENI GUNDU Review attempt	22wh1a0249@bvrithyderabad.edu.in	Finished	17 February 2026 12:59 AM	17 February 2026 1:00 AM	1 min 2 secs	1	✘ -	✔ 0	✘ 0	✘ -	✘ 0	✘ 0	✘ -	✘ -	✔ 0	✘ -	✘ -	✘ -	✘ -	✘ -	✘ -	✘ -	✘ 0	✘ -



Dr.Ch.Sunil Kumar

Professor

EEE Department

BVRIT HYDERABAD Colege of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Computational Analysis of Power Systems Using MATLAB M-Files

Faculty Name: Ms.Banka.Sujatha

Class: II-II / EEE

Academic Year: 2025-2026

Subject Name: Power Systems-II

Topics: All Units

Number of Students Participated: 65

https://drive.google.com/drive/folders/1Pxy-stidI5lWAWMft2U_XjWrnzf3Hd9i

Dates : 22/04/2026 to 06/05/2026

Activity Description

Students implemented MATLAB M-file programs to analyze various Power Systems-II concepts. The simulation activities included calculation of transmission line efficiency, voltage regulation, surge impedance loading, and fault currents for different types of faults. Students developed MATLAB codes, generated simulation results, prepared reports, and demonstrated their findings before the faculty. This activity enhanced practical understanding, programming skills, technical presentation abilities, and application-oriented learning.

Objective

To strengthen students' analytical and computational skills by applying MATLAB programming for solving power system problems related to transmission line performance, fault analysis, and system operation.

Outcome

Students gained hands-on experience in modeling and analyzing power system parameters using MATLAB. The activity improved their understanding of transmission line characteristics, fault current calculations, and power system performance analysis while enhancing their coding and presentation skills.

Key Benefits

• Improved numerical and analytical problem-solving skills.
• Enhanced understanding of transmission line performance and fault analysis.
• Developed MATLAB programming and simulation skills.
• Strengthened technical report writing and presentation abilities.
• Promoted application-oriented and self-directed learning.

Mapped COs

C405.1, C405.3, C405.4, C405.5

Justification

• **C405.1:** Analysis of transmission line parameters, efficiency, and voltage regulation.
• **C405.3:** Computation and analysis of fault currents under different fault conditions.
• **C405.4:** Evaluation of transmission system performance and operating characteristics.
• **C405.5:** Application of modern computational tools for power system studies and analysis.

Mapped POs

PO1, PO2, PO3, PO4, PO5

Mapped PSOs

PSO2

P. Niharika

24WH1A0203

Code:

```
%Transmission Efficiency Calculation
Ps=100; Pr=95;
eff=(Pr/Ps)*100;
disp(eff)
```

Output:

```
EXP3
   95
```

B·Sujatha

B.Sujatha
Associate Professor
EEE Department

•

BVRIT HYDERABAD Colege of Engineering for Women

Department of Electrical and Electronics Engineering

<u>Name of the Activity:</u> <u>Flipped Classroom</u>

Faculty Name: Ms.Banka.Sujatha

Class: II-II / EEE

Academic Year: 2025-2026

Subject Name: Power Systems-II

Topics: Long Transmission Lines, AVR & Tap Changers, Per Unit System

Date: 15/02/2026

Number of Students Participated: 60

https://www.vishnulearning.com/course/view.php?id=25977

To enhance student understanding, the Flipped Classroom approach was implemented. In this method, students reviewed instructional materials such as videos, presentations, and reading resources before the class session. The relevant PPT materials and video links were uploaded in the Learning Management System (LMS) prior to the commencement of the class.

During the classroom session, time was devoted to interactive discussions, clarification of concepts.

Objective:

To enhance students' understanding of solar charge controllers through the implementation of a Flipped Classroom approach, fostering active learning, analytical thinking, and industry-relevant knowledge in photovoltaic (PV) systems.

Description of the Activity:

The Flipped Classroom methodology was adopted to facilitate an engaging and student-centered learning experience. Prior to the class, students were provided with instructional materials including PowerPoint presentations, and reading resources through the Learning Management System (LMS).

During the Session, Students Learned How To:

• Explain the performance characteristics of long transmission lines.

• Understand the role of AVR and tap-changing transformers in voltage regulation.

• Apply the per-unit system for power system calculations.

• Analyze voltage control and reactive power management in transmission systems.

• Apply theoretical concepts to practical power system scenarios.

Mapped COs: C405.1, C405.2, C405.4

Justification

- C405.1: Understanding of transmission line performance and parameters.
- C405.2: Analysis of AVR and tap-changing transformers for voltage regulation.
- C405.4: Application of per-unit system and voltage control techniques.

Mapped POs: PO1, PO2, PO3, PO5, PO10

Mapped PSO: PSO2

Outcome

The activity enhanced students' understanding of transmission line analysis, voltage regulation, and power system operation through active learning and technical discussions.

B.Sujatha

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EEE Department

BVRIT HYDERABAD Colege of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: LMS-Based Unit-Wise Quizzes in Moodle

Faculty Name: Ms.Banka.Sujatha

Class: II-II / EEE

Academic Year: 2025-2026

Subject Name: Power Systems-II

Topics: Unit-I, Unit-II, Unit-III, Unit-IV, Unit-V of PS-II

Dates: 02/02/2026,14/02/2026,22/04/2026,22/04/2026,22/04/2026

No. of Students participated: 65

https://www.vishnulearning.com/course/view.php?id=25977

Course Objectives:

CO No.	Statement	Bloom's level
C405.1		Analyze
C405.2	Design the Power Converters for Solar PV Systems.	Apply
C405.3	Understand the importance of various MPPT Algorithms.	Apply
C405.4	Design the Power Converters for Wind Energy Conversion Systems.	Apply
C405.5	Analyze the various electrical Generators used for the Wind Energy Conversion Systems.	Understand
C405.6	Evaluating the performance characteristics of underground cables.	Analyze

CO-PO,PSO Mapping Table

The following table shows mapping of Course Outcomes with Program Outcomes & Program Specific Outcomes

POWER SYSTEMS-II														
Course Outcomes	**Program Outcomes (PO)**											**PSOs**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**		**PSO1**	**PSO2**
C405.1	3	3	1	1	1	-	-	-	-	-	-		-	-
C405.2	2	3	2	2	2	1	-	-	-	-	1		-	3
C405.3	2	2	2	2	1	1	-	-	-	-	-		-	1
C405.4	3	3	2	2	1	1	-	-	-	-	1		-	-
C405.5	3	3	3	3	2	1	-	-	-	-	1		-	2
C405.6	2	2	1	1	-	-	1	-	-	-	-		-	-
Mean	**2.5**	**2.67**	**1.83**	**1.83**	**1.4**	**1**	**1**	**-**	**-**	**-**	**1**		**-**	**2**

To assess students' understanding of each unit and reinforce learning through structured online quizzes.

Description of the Activity:

Unit-wise quizzes and Mid-I/Mid-II preparation quizzes were conducted using the Moodle LMS platform. These quizzes were designed to test key concepts from each chapter.

• **Quiz Format:**
Multiple-choice questions (MCQs) with autograding and instant feedback.
• **Coverage:** Unit-wise quizzes mapped to C405.1-C405.6
• **Execution:**
Each quiz was time-bound and randomized.
Students could review explanations after completion.
Attempts were monitored via LMS logs.

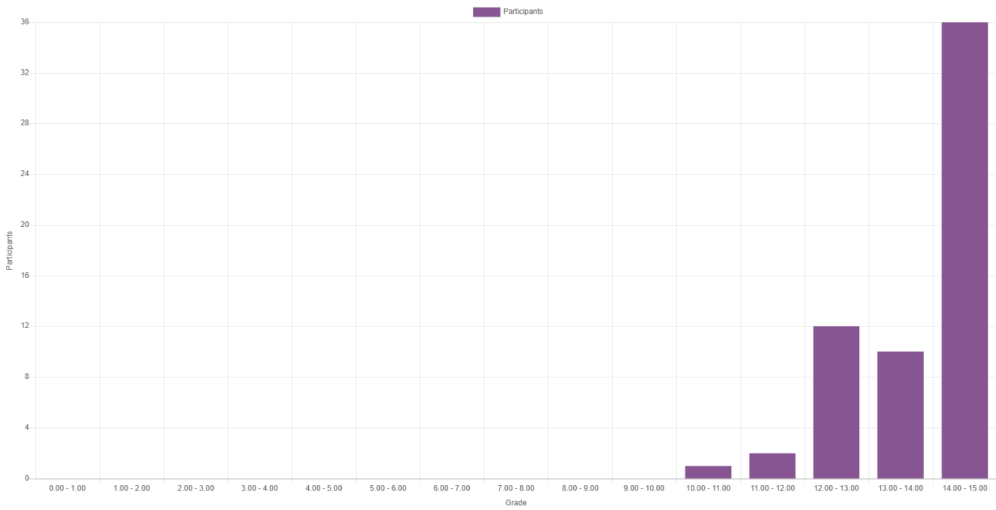
Justification:
These formative assessments helped in continuous evaluation, improved exam readiness, and allowed early identification of learning gaps.

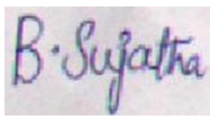
Outcome:
• Improved quiz scores in successive attempts.
• Better performance in mid exams due to regular practice.
• Increased student confidence and engagement.

Key Benefits of Conducting Online Quizzes in Moodle

1. Remote Participation: Students can take the quiz from any location, promoting flexibility and accessibility.
2.Large-Scale Engagement: Allows a large number of students to participate simultaneously without compromising system performance. **3.Randomized Content Delivery:** Questions and options are randomized to reduce the risk of academic dishonesty.
4.Immediate Feedback: Students receive instant results along with correct answers, facilitating self-assessment and learning.
5.Real-Time Performance Analysis: Instructors can instantly access quiz analytics to gauge student understanding and adjust instruction accordingly.

First name / Surname	Email address	State	Started on	Completed	Time taken	Grade/15.00	Q. 1 /1.00	Q. 2 /1.00	Q. 3 /1.00	Q. 4 /1.00	Q. 5 /1.00	Q. 6 /1.00	Q. 7 /1.00	Q. 8 /1.00	Q. 9 /1.00	Q. 10 /1.00	Q /1
RISHITHA NAGAMALLA Review attempt	24whla0258@bvrithyderabad.edu.in	Finished	9 February 2026 11:25 AM	9 February 2026 11:31 AM	6 mins 12 secs	15.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔
PAVANI KOMMU Review attempt	24whla0254@bvrithyderabad.edu.in	Finished	9 February 2026 4:42 PM	9 February 2026 4:48 PM	5 mins 58 secs	15.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔
SIRISHA B Review attempt	24whla0220@bvrithyderabad.edu.in	Finished	9 February 2026 4:55 PM	9 February 2026 4:59 PM	4 mins 14 secs	13.00	✔ 1.00	✘ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✘ 0.00	✔ 1.00	✔ 1.00	✔
SONY G Review attempt	24whla0214@bvrithyderabad.edu.in	Finished	9 February 2026 5:03 PM	9 February 2026 5:06 PM	3 mins 14 secs	14.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔
LAKSHMI SARANYA G Review attempt	24whla0246@bvrithyderabad.edu.in	Finished	9 February 2026 6:32 PM	9 February 2026 6:40 PM	7 mins 56 secs	13.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✘ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✘ 0.00	✔
RAJESWARI THELLURI Review attempt	24whla0230@bvrithyderabad.edu.in	Finished	9 February 2026 6:38 PM	9 February 2026 6:42 PM	3 mins 19 secs	11.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✘ 0.00	✘ 0.00	✘ 0.00	✔
SIRI VENKATA SAI KALIDINDI Review attempt	24whla0242@bvrithyderabad.edu.in	Finished	9 February 2026 6:45 PM	9 February 2026 6:52 PM	7 mins 2 secs	14.00	✔ 1.00	✘ 0.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔
HEMASRI BUDDALA Review attempt	24whla0252@bvrithyderabad.edu.in	Finished	9 February 2026 7:00 PM	9 February 2026 7:04 PM	3 mins 40 secs	15.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔ 1.00	✔





B.Sujatha
Associate Professor
EEE Department

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BVRIT HYDERABAD Colege of Engineering for Women

Department of Electrical and Electronics Engineering

Name of the Activity: Open Book Examination

Faculty Name: Ms.Banka.Sujatha

Class: II-II / EEE

Academic Year: 2025-2026

Subject Name: Power Systems-II

Topics: UNIT-I Numerical Probelms on Critical Disruptive voltage and power losses

Date: 16/02/2026

Number of Students Participated: 40

Objective:
To assess students' conceptual understanding and numerical problem-solving skills through the application of engineering formulas and analytical methods, while promoting active and self-directed learning.

Outcome:
The activity identified gaps in formula application, unit conversion, solution presentation, and time management, enabling targeted academic support and improvement.

Key Benefits:
Enhanced analytical thinking, numerical accuracy, systematic problem-solving, and technical presentation skills. The activity particularly supported academically weak and irregular students in improving conceptual understanding, examination performance, and industry-oriented problem-solving abilities.

Mapped COs

C405.1, C405.2, C405.3

Justification

- **C405.1:** Application of transmission line concepts and performance calculations.
- **C405.2:** Analysis of voltage regulation and reactive power control methods.
- **C405.3:** Solving numerical problems related to transmission system operation and performance.

Mapped POs

PO1, PO2, PO3

Mapped PSOs

PSO2

C.Mani Harika
24WH1A0218

Q) A 132KV, 50Hz, 3-phase tr. line 190Km long consist of 1.2cm diameter with a distance of 2.8m, $g_0 = 21.21$ KV/cm (rms). Temperature $t = 30°C$, $b = 75$ cm of Hg, irregularity factor $m_0 = 0.86$; Calculate

i) Disruptive critical voltage (V_c)

ii) Visual critical voltage (V_v) Here $m_0 = 0.74$

iii) Power loss during fair weather condition using peek's formula

iv) Power loss during foul weather condition using (Here V_c is suddenly reduce to 80%

Don't strike off. Don't neat

Sol: Given,

i) $V_L = 132KV$

$V_{ph} = \frac{V_L}{\sqrt{3}} = 76.21KV$

$D = 1.2cm$

$r = 0.6cm.$

$\delta = \frac{3.92b}{273+t}$

$= \frac{3.92 \times 75}{}$

$d = 2.80m$

$$\boxed{P_C = 1.05\ \text{KW/Km/phase}}$$

$$\boxed{P_C = \cancel{1.05 \times 10^{3}}\ \text{KW/Km/phase}}$$

iv) $$P_c' = 244 \times 10^{-5} \times \frac{(f+25)}{\delta} \sqrt{\frac{r}{d}} \times (V_{ph} - 0.8 V_c)^2$$

$$= 244 \times 10^{-5} \frac{(50+25)}{0.97} \sqrt{\frac{0.6}{280}} \left(76.21 - (0.8)65.24\right)^2$$

$$\boxed{P_c' = 5.037\ \text{KW/Km/phase}}$$

.

B·Sujatha

B.Sujatha
Associate Professor
EEE Department

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Department of Electrical and Electronics Engineering

Name of the Activity: Interactive Doubt Clarification and Concept Reinforcement Session

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-B

Academic Year: 2025-26

Subject Name: Network Analysis and Synthesis

Topic: Graph Theory and Magnetic Circuits

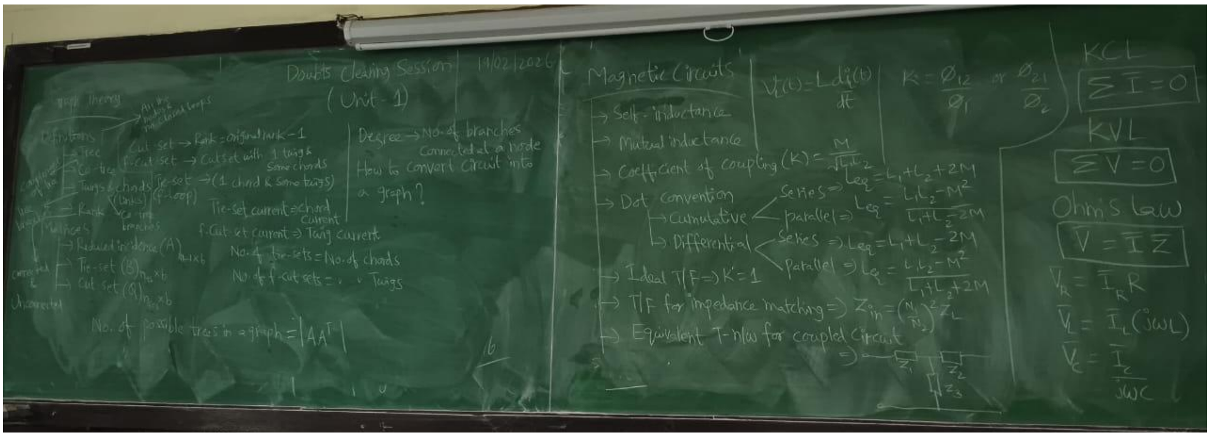
Date: 19/02/2026

Write-up: As part of an interactive learning initiative in Network Analysis and Synthesis, a Doubts Clearing Session on Unit–I was conducted for the students. The session addressed important topics including graph theory, tie-set and cut-set matrices, magnetic circuits, self and mutual inductance, coupled circuits, KCL, KVL, and basic circuit laws. Students actively participated in discussions, clarified their conceptual doubts, and referred to textbooks, class notes, online resources, and AI-based tools to reinforce their understanding. The session promoted self-learning, critical thinking, and deeper comprehension of fundamental concepts, thereby enhancing students’ confidence and problem-solving skills.

Impact:

- Improved students' conceptual understanding of Unit–I topics in Network Analysis and Synthesis.
- Enhanced analytical and problem-solving skills through interactive doubt clarification.
- Increased students' confidence in solving numerical and conceptual questions.
- Encouraged self-learning by utilizing textbooks, class notes, online resources, and AI-based tools.
- Promoted active participation, critical thinking, and better preparation for tutorials and examinations.

Photos:



Signature R. Manojkumar

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Department of Electrical and Electronics Engineering

Name of the Activity: Flipped Class Room

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-B

Academic Year: 2025-26

Subject Name: Network Analysis and Synthesis

Topic: Two-port Networks

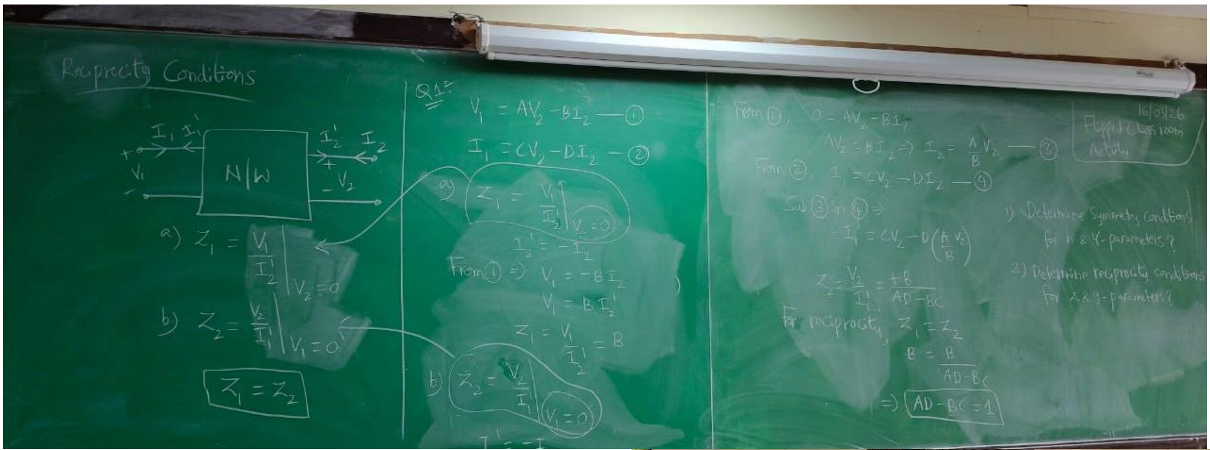
Date: 16/03/2026

Write-up: As part of the Flipped Classroom Activity in Network Analysis and Synthesis, students were encouraged to study the concepts of two-port networks using reference materials before attending the class. During the session, interactive discussions were conducted on important topics such as reciprocity and symmetry conditions for Z, Y, ABCD, and h-parameters. Students actively participated in deriving the conditions, clarifying doubts, and solving related problems with faculty guidance. This learner-centered approach promoted active participation, strengthened conceptual understanding, and enhanced analytical and problem-solving skills. The activity enabled students to connect theoretical concepts with mathematical derivations and encouraged deeper engagement with the subject.

Impact:

- Improved students' conceptual understanding of two-port network parameters and their reciprocity and symmetry conditions.
- Enhanced analytical and mathematical derivation skills through active discussions and problem-solving.
- Increased students' confidence in applying Z, Y, ABCD, and h-parameter concepts to network analysis.
- Encouraged self-directed learning, active participation, and collaborative learning in the classroom.

Photos:


Reciprocity Conditions
N/W
Q1:
$V_1 = AV_2 - BI_2$ — ①
$I_1 = CV_2 - DI_2$ — ②
$Z_1 = Z_2$
Flipped Classroom Activity
1) Determine Symmetry conditions for h & Y-parameters?
2) Determine reciprocity conditions for Z & g-parameters?
For reciprocity, $Z_1 = Z_2$
$AD - BC = 1$

Faculty Sign

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Department of Electrical and Electronics Engineering

Name of the Activity: Getting Familiar with COs

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-B

Academic Year: 2025-26

Subject Name: Network Analysis and Synthesis

Topic: Introduction to NAS

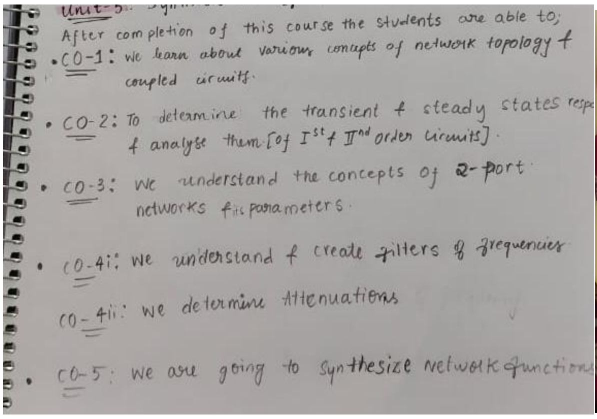
Date: 28/01/2026

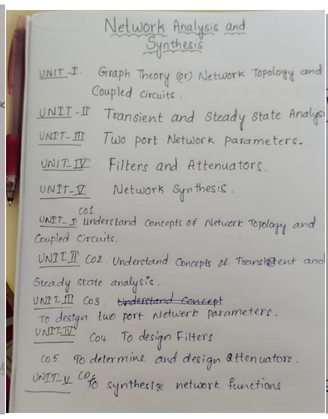
Write-up: As part of the Course Outcome Familiarization Session in Network Analysis and Synthesis, students were introduced to the course outcomes and the key topics to be covered throughout the semester. Fundamental concepts such as DC and AC circuits, graph theory, two-port networks, matrix methods, and basic network analysis techniques were discussed to provide students with an overview of the course structure and expected learning objectives. Interactive discussions and illustrative examples were used to help students understand the relevance and applications of each topic. This orientation activity enabled students to gain clarity on the course expectations, develop a roadmap for learning, and establish a strong foundation for subsequent topics.

Impact:

- Developed a clear understanding of the course outcomes, syllabus, and expected learning objectives.
- Motivated students to plan their learning effectively by understanding the sequence and relevance of course topics.
- Established a strong conceptual foundation, improving students' readiness and confidence for subsequent modules.

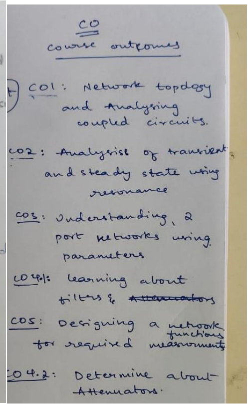
Photos:


Unit-5: ...
After completion of this course the students are able to;
- CO-1: we learn about various concepts of network topology & coupled circuits.
- CO-2: To determine the transient & steady states resp... & analyse them [of Ist & IInd order circuits].
- CO-3: we understand the concepts of 2-port networks & its parameters.
- CO-4i: we understand & create filters of frequencies
  CO-4ii: we determine Attenuations
- CO-5: we are going to synthesize network functions


Network Analysis and Synthesis

UNIT-I. Graph Theory (or) Network Topology and Coupled circuits.
UNIT-II Transient and Steady state Analysis
UNIT-III Two port Network parameters.
UNIT-IV Filters and Attenuators.
UNIT-V Network Synthesis.

UNIT-I CO1 Understand concepts of Network Topology and Coupled Circuits.
UNIT-II CO2 Understand Concepts of Transient and Steady state analysis.
UNIT-III CO3 ~~Understand Concept~~ To design two port Network parameters.
UNIT-IV CO4 To design Filters
CO5 To determine and design attenuators.
UNIT-V CO6 To synthesise network functions


CO
course outcomes

CO1: Network topology and Analysing coupled circuits.
CO2: Analysis of transient and steady state using resonance
CO3: Understanding 2 port networks using parameters
CO4.1: learning about filters & ~~Attenuators~~
CO5: Designing a network functions for required measurements
CO4.2: Determine about Attenuators.

Faculty Sign R. Manojkumar

Network Analysis and Synthesis

AY: 2025-26
Year – Sem and Section: I-II / ECE-A
Class Strength: 64

List of Activities Conducted

S. No.	Name of the Activity	No. of Students	Remarks
1	Getting Familiar with Course Outcomes	37	Students were introduced to the course outcomes, syllabus structure, and learning objectives to establish a strong foundation for the course.
2	Prerequisite Test	37	Students' prerequisite knowledge of basic circuit analysis was assessed to identify learning gaps and strengthen foundational concepts.

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Department of Electrical and Electronics Engineering

Name of the Activity: Open Discussion Test

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-B

Academic Year: 2025-26

Subject Name: Network Analysis and Synthesis

Topic: Network Synthesis

Date: 28/04/2026

Write-up: As part of the Open Discussion Test in Network Analysis and Synthesis, students were assigned a problem on the synthesis of LC networks involving Foster and Cauer forms. Students were encouraged to analyze the given network function, discuss various solution approaches, and justify the selection of appropriate synthesis techniques. Interactive discussions among students and faculty helped clarify concepts related to partial fraction expansion, continued fraction expansion, and the conditions for obtaining Foster-I, Foster-II, Cauer-I, and Cauer-II realizations. This activity promoted active participation, collaborative learning, and critical thinking while strengthening students' understanding of network synthesis concepts and improving their analytical problem-solving skills.

Impact:

- Enhanced students' understanding of LC network synthesis techniques, including Foster and Cauer realizations.
- Improved analytical, critical thinking, and problem-solving skills through collaborative discussions and concept-based reasoning.
- Increased students' confidence in selecting appropriate synthesis methods and solving complex network synthesis problems.

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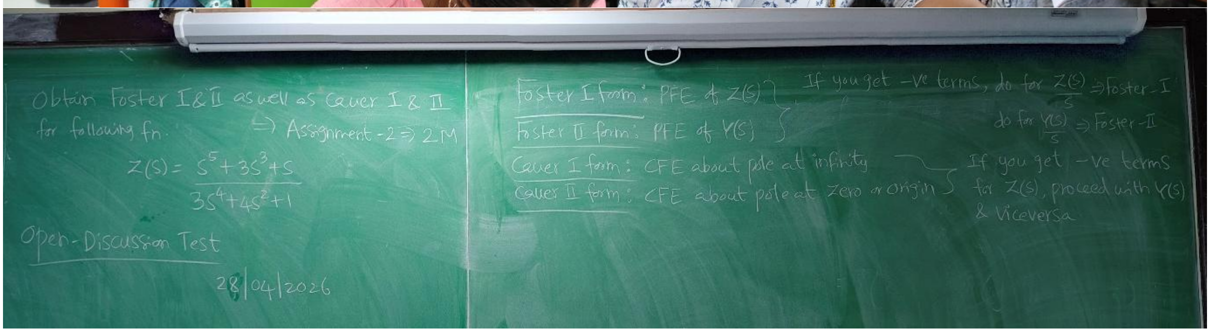

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Department of Electrical and Electronics Engineering

Name of the Activity: Pre requisite Test

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-A

Academic Year: 2025-26

Subject Name: Network Analysis and Synthesis

Topic: Mesh Analysis

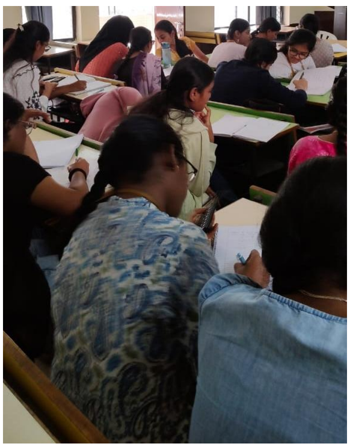
Date: 28/01/2026

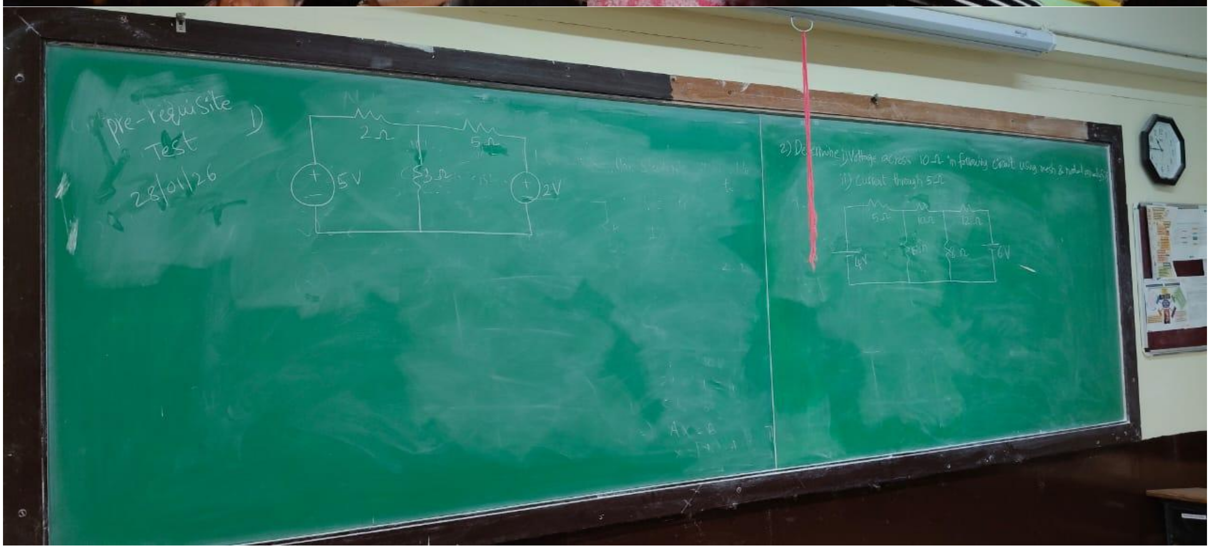
Write-up: As part of the Pre-Requisite Test in Network Analysis and Synthesis, students were assessed on their understanding of fundamental electrical circuit concepts required for the course. The test included problems based on basic network theorems, voltage and current calculations, and circuit analysis techniques. Students solved the given circuits using previously learned concepts, enabling them to revisit foundational knowledge and identify areas requiring further improvement. The activity helped strengthen conceptual clarity, evaluate students' preparedness for advanced topics, and provide a smooth transition into the course content. It also encouraged analytical thinking and enhanced problem-solving skills among the students.

Impact:

- Assessed students' preparedness for the course by identifying strengths and gaps in prerequisite knowledge.
- Reinforced fundamental circuit analysis concepts, improving conceptual clarity and problem-solving skills.
- Enabled targeted learning support, ensuring a stronger foundation for understanding advanced network analysis topics.

Photos:





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Department of Electrical and Electronics Engineering

Name of the Activity: Simulation based Learning

Faculty Name: Dr. R. Manojkumar

Class: I – II / CSE-D

Academic Year: 2025–26

Subject Name: Basic Electrical Engineering Lab

Topic: Verification of Circuit Theorems

Date: 06/06/2026

Write-up:

As part of the Simulation-Based Inquiry and Application-Oriented Learning activity in the Basic Electrical Engineering Lab, students were assigned a circuit to verify Thevenin's Theorem, Norton's Theorem, and Superposition Theorem using LTSpice software. Each student used unique voltage and current source values based on their class serial number, ensuring individual analysis and preventing duplication of results. Students simulated the circuit, determined the current through the 4 Ω resistor using all three network theorems, compared the obtained results, and documented simulation screenshots as evidence. The activity strengthened students' understanding of network theorems, enhanced their circuit simulation skills, and provided practical exposure to validating theoretical concepts using engineering software.

Impact:

- Improved students' understanding of Thevenin's, Norton's, and Superposition theorems through hands-on simulation.
- Enhanced proficiency in using LTSpice for circuit analysis and verification of theoretical concepts.
- Strengthened analytical, problem-solving, and technical documentation skills through individual simulation-based learning.

Photos:

Timestamp	Registration Number	Upload the solution pdf of Activity (only pdf typ Column 1
6-6-2026 21:06:55	25WH1A05K4	https://drive.google.com/open?id=1VzqxO8hVs3QexnxXM4iD1IlPP_MRT6Ft
6-5-2026 21:50:37	25WH1A05K5	https://drive.google.com/open?id=1sguL9eDgAon95_01cETMFC__Jvj7TpC9
6-6-2026 0:38:08	25WH1A05K6	https://drive.google.com/open?id=1AmQLVBsWfs2YC57e7hem22y5xD83c8cn
6-5-2026 21:50:11	25WH1A05K7	https://drive.google.com/open?id=15BP338iSb9oAYi7KVRaFgDQkq_YS5R_F
6-5-2026 21:03:49	25WH1A05K8	https://drive.google.com/open?id=1E4DvhTocBe3E1f5DkykPsY1qNecnlydS
6-13-2026 21:42:51	25WH1A05K9	https://drive.google.com/open?id=1hj98Lvn22vmospIc71uyWkbJC_Y2WBg6
6-5-2026 20:31:38	25WH1A05L0	https://drive.google.com/open?id=1eRG5TzgqQLxg-e4OWgSvdfMzvNYYkOSo
6-5-2026 21:58:39	25WH1A05L1	https://drive.google.com/open?id=164lh0Qx-P9gGjAKXfVZBJQ07pw0JyKwE
6-5-2026 22:05:55	25WH1A05L2	https://drive.google.com/open?id=1O-kSVg0SkP1dgQ0Q_P_SAF8sdsmJymlZ
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6-5-2026 21:00:11	25WH1A05L4	https://drive.google.com/open?id=1lk4gqGgOIbQ3YVRWCKGBwOP7EiXAgo_4
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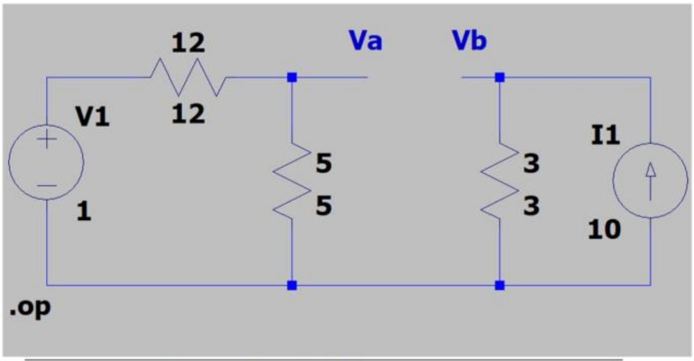
6-12-2026 22:26:27	25WH1A05L8	https://drive.google.com/open?id=1VbtWNf5PhDBEFQvQQuB9V-mv3ux6GaKO

Thevenin's Theorem

Open-Circuit Load Terminals to Find Vth

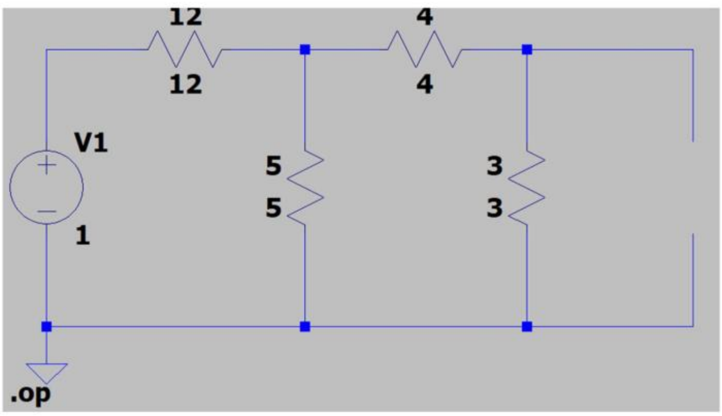



```
--- Operating Point ---

V(n001):      2.40741e-23     voltage
V(n002):      -0.705882       voltage
V(n003):      29              voltage
V(n004):      -1              voltage
I(12):        -0.0588235      device_current
I(3):         10              device_current
I(5):         0.0588235       device_current
I(I1):        10              device_current
```

Superposition Theorem

Only Voltage Source Active




```
--- Operating Point ---

V(n001):      1               voltage
V(n002):      0.195531        voltage
V(n003):      0.0837989       voltage
I(12):        -0.0670391      device_current
I(3):         -0.027933       device_current
```

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Name of the Activity: Simulation based Learning

Faculty Name: Dr. R. Manojkumar

Class: I – II / ECE-A&B

Academic Year: 2025–26

Subject Name: Network Analysis and Synthesis

Topic: Resonance and Damping in Electrical Circuits

Date: 02/06/2026

Write-up:

As part of a Project-Based Learning activity in the Basic Electrical Engineering Lab, students carried out the analysis and simulation of resonance and transient responses in RL, RC, and RLC circuits using MATLAB and LTSpice. Each student was assigned unique circuit parameters (R, L, and C) derived from their roll number to ensure individualized learning and analysis. Students analyzed the frequency response of series and parallel resonance circuits using MATLAB, simulated the transient responses of RL and RC circuits to determine time constants, and designed underdamped, critically damped, and overdamped RLC circuits using LTSpice. The activity enabled students to compare theoretical concepts with simulation results while strengthening their understanding of resonance, transient analysis, and circuit behavior through practical software-based implementation.

Impact:

- Enhanced students' understanding of resonance, transient response, and damping characteristics in electrical circuits.
- Improved proficiency in MATLAB and LTSpice for circuit modeling, simulation, and performance analysis.
- Strengthened analytical thinking, simulation skills, and the ability to relate theoretical concepts to practical engineering applications.

Photos:

6-2-2026 17:17:20	100	https://drive.google.com/open?id=1295KQizV__tapPilpbpOMAlOOdPrx_0x
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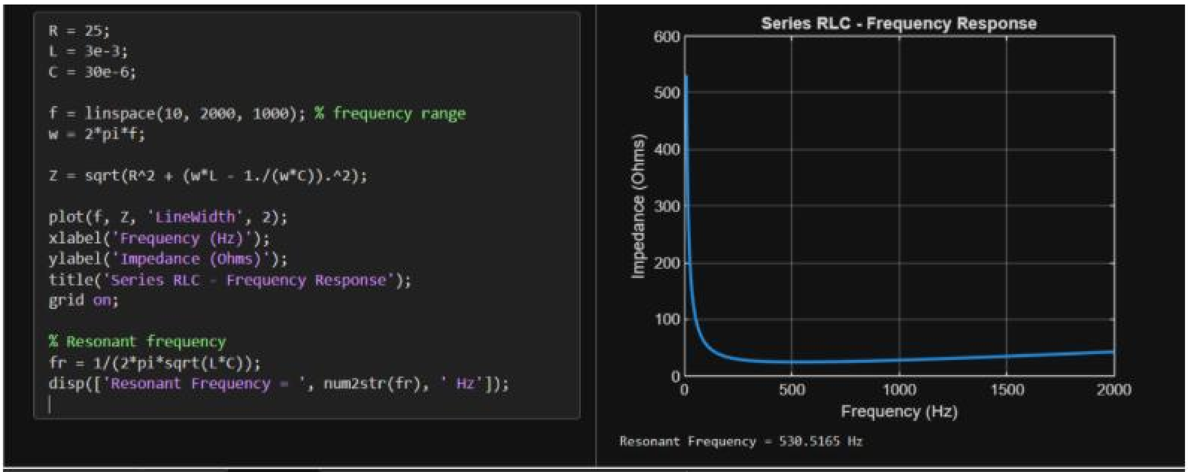
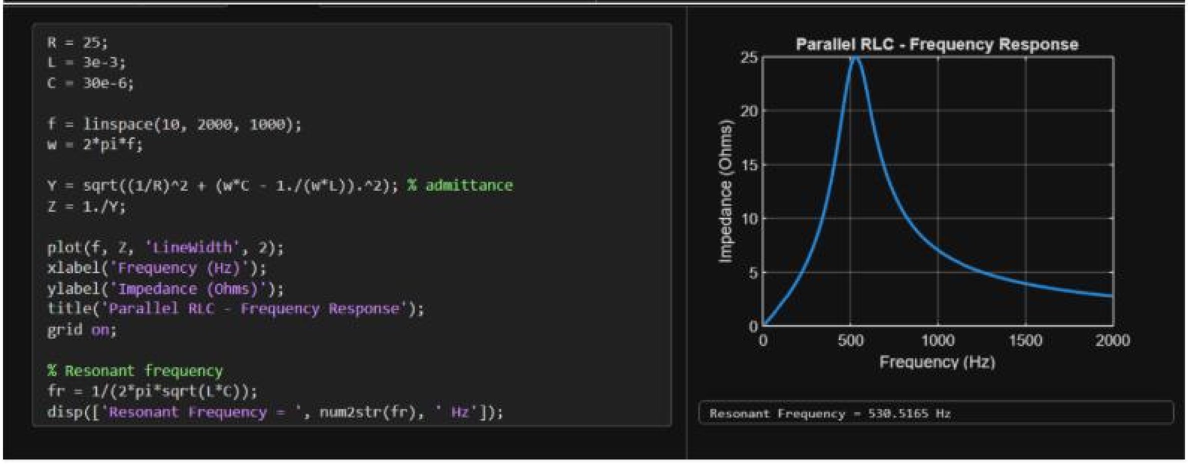
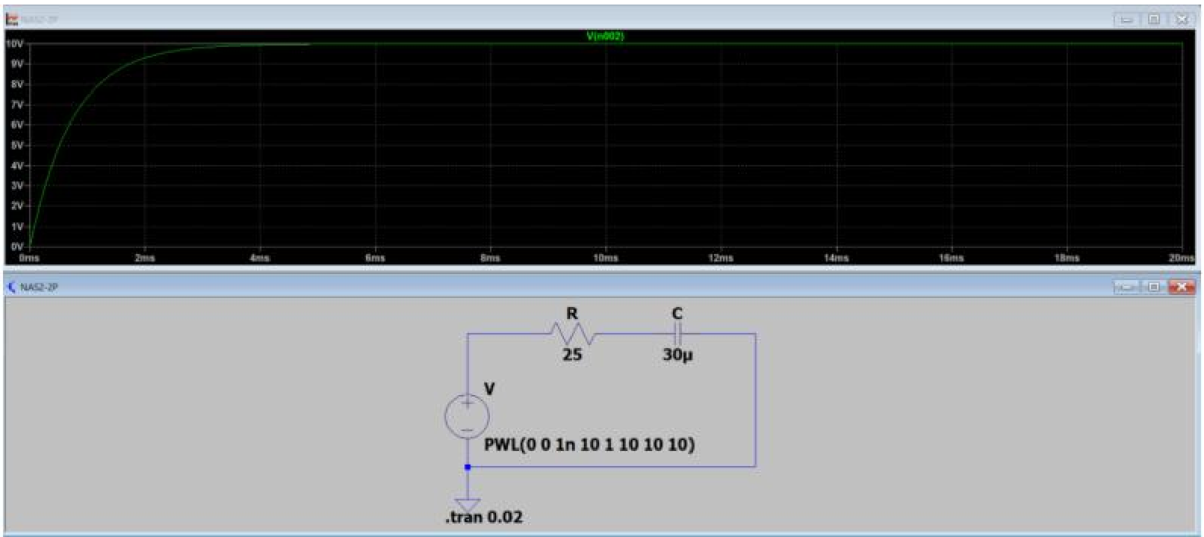

R = 25;
L = 3e-3;
C = 30e-6;
f = linspace(10, 2000, 1000); % frequency range
w = 2*pi*f;
Z = sqrt(R^2 + (w*L - 1./(w*C)).^2);
plot(f, Z, 'LineWidth', 2);
xlabel('Frequency (Hz)');
ylabel('Impedance (Ohms)');
title('Series RLC - Frequency Response');
grid on;
% Resonant frequency
fr = 1/(2*pi*sqrt(L*C));
disp(['Resonant Frequency = ', num2str(fr), ' Hz']);
Series RLC - Frequency Response
Impedance (Ohms)
Frequency (Hz)
Resonant Frequency = 530.5165 Hz


R = 25;
L = 3e-3;
C = 30e-6;
f = linspace(10, 2000, 1000);
w = 2*pi*f;
Y = sqrt((1/R)^2 + (w*C - 1./(w*L)).^2); % admittance
Z = 1./Y;
plot(f, Z, 'LineWidth', 2);
xlabel('Frequency (Hz)');
ylabel('Impedance (Ohms)');
title('Parallel RLC - Frequency Response');
grid on;
% Resonant frequency
fr = 1/(2*pi*sqrt(L*C));
disp(['Resonant Frequency = ', num2str(fr), ' Hz']);
Parallel RLC - Frequency Response
Impedance (Ohms)
Frequency (Hz)
Resonant Frequency = 530.5165 Hz


R
25
C
30µ
V
PWL(0 0 1n 10 1 10 10 10)
.tran 0.02

Signature