ROHINI COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
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Department of ELECTRICAL AND ELECTRONICS ENGINERING

Academic Year 2025 – 2026 (Even Semester)

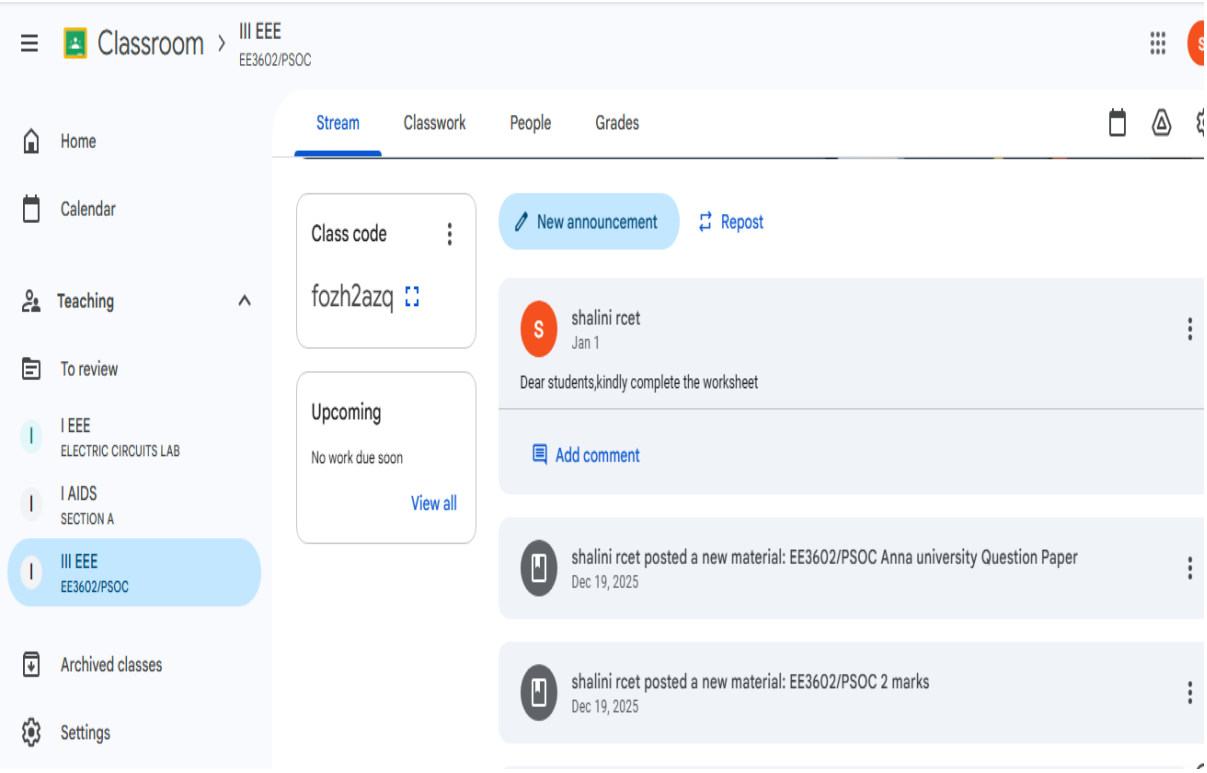
Degree, Semester & Branch: VI Semester B.E. EEE

Course Code & Title: EE3602 – POWER SYSTEM OPERATION AND CONTROL

Name of the Faculty member: Mrs.R.BRINDHA SHALINI

INNOVATIVE TEACHING METHODOLOGIES

1. **Google Classroom**
   https://classroom.google.com/c/ODIxNDAwNzIzMTI5?cjc=fozh2azq



WORK SHEET

Unit / Topic: Unit 1: INTRODUCTION/ LOAD CURVE AND REQUIREMENTS OF POWER SYSTEM

Course Outcome: CO1

Activity Chosen: PROBLEM SOLVING

Justification:

Worksheet problem activities are used to reinforce theoretical concepts by providing structured, practice-oriented questions that promote active learning. Through these activities, students apply fundamental principles to solve numerical and conceptual problems, improve problem-solving accuracy, and enhance analytical thinking. Regular worksheet practice helps in self-assessment, clarifies doubts, and strengthens understanding, thereby improving academic performance and readiness for examinations.

https://drive.google.com/file/d/1YB178MY7oOVbCJfAYVK4CC5BYnbcJ_9B/view?usp=classroom_web&authuser=0

CASE STUDY

Unit / Topic: Unit 1: INTRODUCTION

Course Outcome: CO1

Activity Chosen: CASE STUDY ANALYSIS

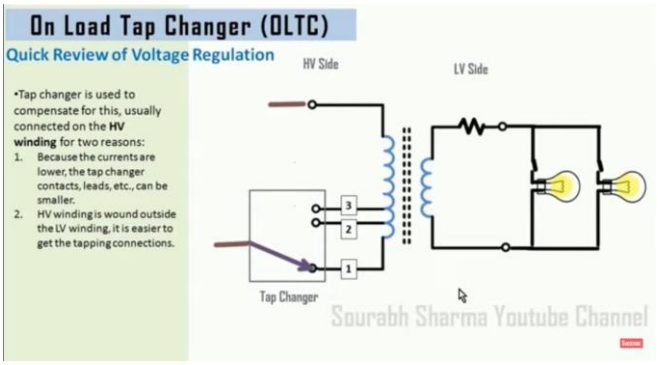
Justification:

Case studies are used as an effective teaching methodology to bridge the gap between theoretical knowledge and real-world applications. By analyzing specific scenarios or problems, students develop critical thinking, problem-solving, and decision-making skills. Case studies encourage active learning, discussion, and reflection, allowing students to explore multiple perspectives and understand practical challenges. They also help in applying course concepts to realistic situations, enhancing conceptual clarity, analytical ability, and the ability to transfer knowledge to professional contexts.

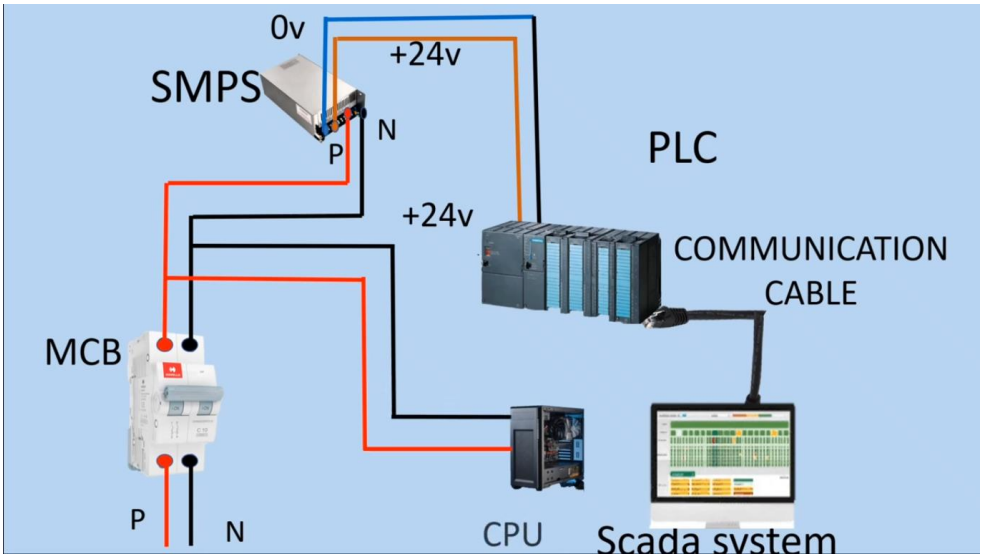
https://drive.google.com/file/d/1gPFi-q0j30OXAWKP6kVIzHYFcjaxgyk/view?usp=classroom_web&authuser=0

Animated Videos

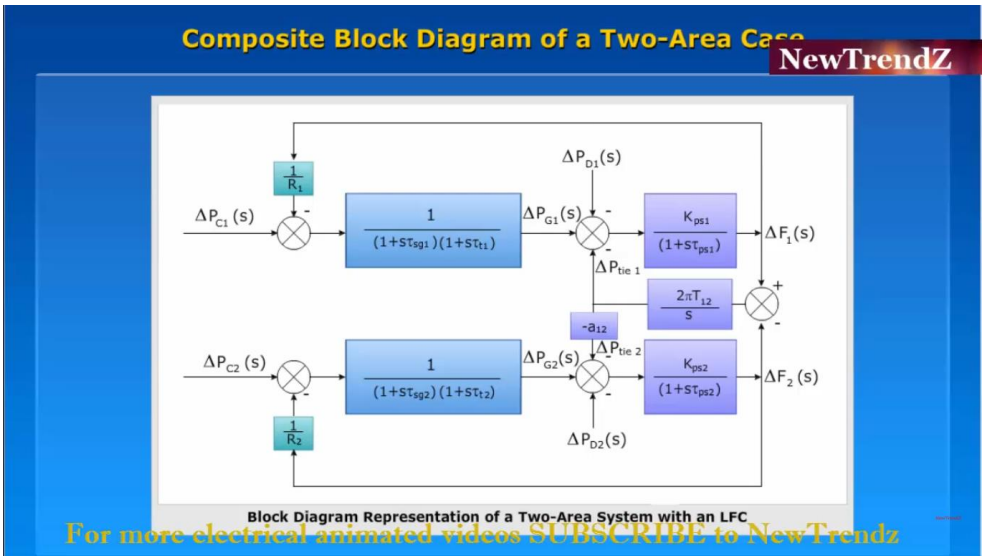
a. https://www.youtube.com/watch?v=R_NxRDXOEFk



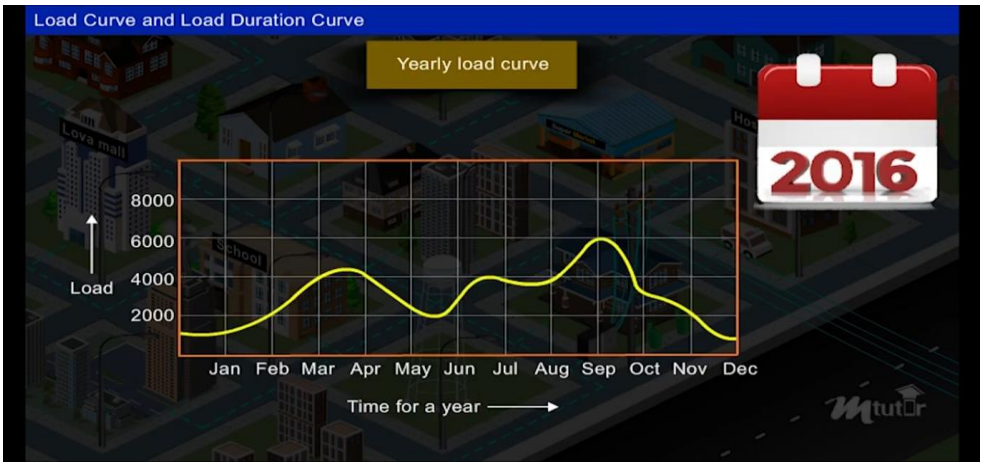
b. https://www.youtube.com/watch?v=lrPOd4Rh7Dc



c. https://www.youtube.com/watch?v=d7uShbNNCIw



d. https://www.youtube.com/watch?v=OQsk_4oqFmc



INNOVATIVE PRACTICE DESCRIPTION

Unit / Topic: Unit IV / ECONOMIC DISPATCH

Course Outcome: CO 4

Activity Chosen: Virtual Lab

Justification:

Virtual laboratories provide an effective and flexible learning environment by allowing students to perform experiments through simulation without the limitations of physical infrastructure. They enhance conceptual understanding by enabling visualization of complex systems, ensure safety while handling high-risk experiments, reduce equipment and maintenance costs, and support self-paced, repetitive learning. Virtual labs also improve analytical and problem-solving skills and help bridge the gap between theoretical knowledge and practical application, making them a valuable supplement to conventional laboratories.

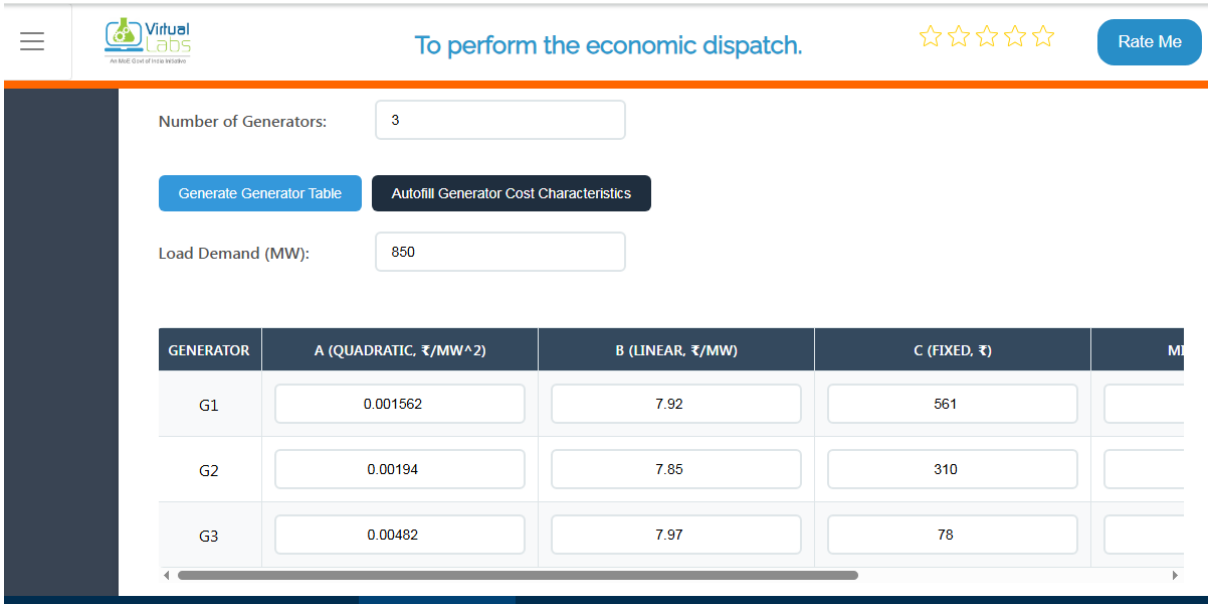
Time Allotted for the Activity: 15 minutes

Details of the Implementation:

STEP 1: Enter the number of generators in power system. Then, click on the **"Generate Generator Table"** and fill the details of generators i.e., a, b, c (Quadratic, linear and no-load cost coefficients), and Minimum (MW) and Maximum power (MW) for each buses and the load demand.

STEP 2: Click on **"Run Economic Dispatch"**.

STEP 3: The values of the generators scheduled power and its associated cost are displayed in Table format. The total cost incurred and the lambda are also displayed in the bottom.



Economic Dispatch Results

GENERATOR	SCHEDULED POWER (MW)	COST (₹)
G1	393.17	3916.38
G2	334.61	3153.86
G3	122.23	1124.16

Total Cost: 8194.40 ₹

Lambda (Marginal Cost): 9.1483 ₹/MW

Total Generation: 850.00 MW

Total Demand: 850.00 MW