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## Department of ELECTRICAL AND ELECTRONICS ENGINEERING

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=f0zh2azq>

The screenshot shows the Google Classroom interface for the course 'III EEE EE3602/PSOC'. The Stream tab is active, displaying the following content:

- Class code:** f0zh2azq
- New announcement:** shalini rcet Jan 1. Message: Dear students, kindly complete the worksheet.
- Upcoming:** No work due soon.
- Posted materials:**
  - Dec 19, 2025: shalini rcet posted a new material: EE3602/PSOC Anna university Question Paper
  - Dec 19, 2025: shalini rcet posted a new material: EE3602/PSOC 2 marks

The sidebar on the left lists other classes and sections:

- III EEE EE3602/PSOC (selected)
- I EEE ELECTRIC CIRCUITS LAB
- I AIDS SECTION A
- Archived classes
- Settings

## 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](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

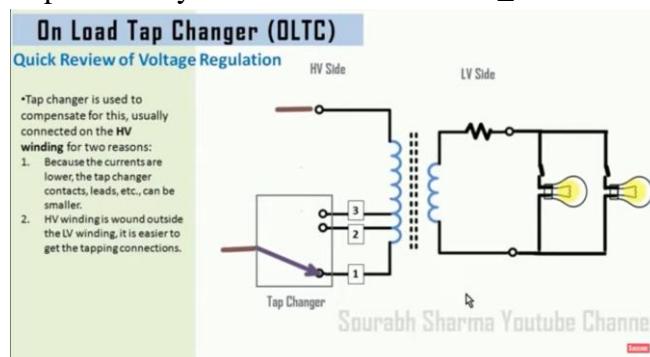
Justification:

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.

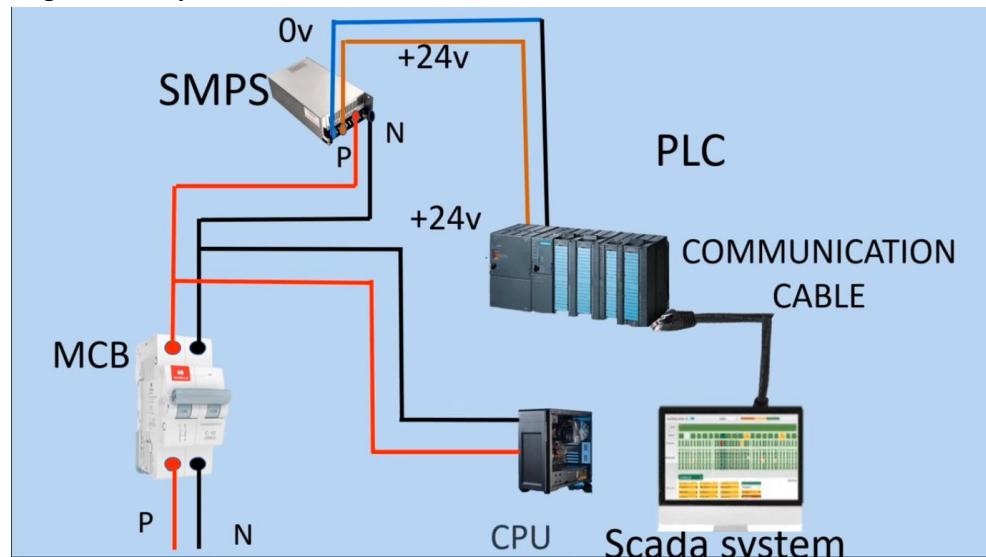
[https://drive.google.com/file/d/1gPFi-q0j30OXAWKP6kV1zHYFcjaxgyk/view?usp=classroom\\_web&authuser=0](https://drive.google.com/file/d/1gPFi-q0j30OXAWKP6kV1zHYFcjaxgyk/view?usp=classroom_web&authuser=0)

## Animated Videos

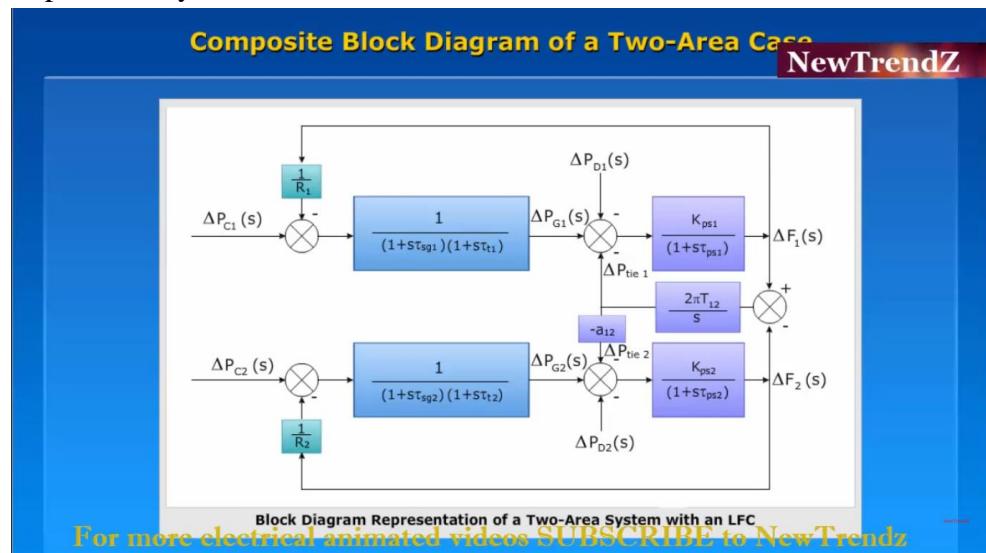
- [https://www.youtube.com/watch?v=R\\_NxRDXOEFk](https://www.youtube.com/watch?v=R_NxRDXOEFk)



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](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.

The screenshot shows a web-based application for performing economic dispatch. At the top, there is a header with a logo for 'Virtual Labs' and a rating section with five stars and a 'Rate Me' button. Below the header, there are input fields for 'Number of Generators' (set to 3) and 'Load Demand (MW)' (set to 850). There are also two buttons: 'Generate Generator Table' and 'Autofill Generator Cost Characteristics'. The main area contains a table for generator cost characteristics:

GENERATOR	A (QUADRATIC, ₹/MW <sup>2</sup> )	B (LINEAR, ₹/MW)	C (FIXED, ₹)	M (MIN. POWER)	M (MAX. POWER)
G1	0.001562	7.92	561		
G2	0.00194	7.85	310		
G3	0.00482	7.97	78		

At the bottom, there is a summary table showing the total cost and lambda:

Cost	λ
1000	0.001562

**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**