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KINGS COLLEGE OF ENGINEERING

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Guest Lecture on

"ECONOMIC DISPATCH OF POWER SYSTEM WITH RENEWABLE ENERGY SOURCES"

REPORT

The department of Electrical and Electronics Engineering has organized a Guest Lecture on "**Economic Dispatch of Power system with Renewable Energy Sources**" on 26th November, 2022.

Beneficiaries	**:**	**III Year Students (41) & IV Year Students (9)**
Date	**:**	**26-11-2022**
Session Time	**:**	**07.00 P.M to 8.00 P.M**
Venue	**:**	**Online (Meet Link: https://meet.google.com/nbk-ppke-ixz)**
Resource Person	**:**	**Mr. K. Manikandan, M.E., (Ph.D.),** **Assistant Professor, Department of EEE** **School of Engineering & Technology** **Mohan Babu University** **Sree Sainath Nagar, Tirupati, Andhra Pradesh**

The main objective of this Guest Lecture is to impart knowledge on the economic dispatch of power system with renewable energy sources.

The Guest Lecture session started with the welcome address delivered by Dr.R.Arulraj AP/EEE. After the welcome address, Dr.R.Arulraj AP/EEE introduced the resource person, Mr.K.Manikandan, to the participants and also mentioned the various academic and research contributions of the resource person in the field of power system engineering.

The resource person started the session by interacting with the students about their basic knowledge in the power system engineering field. He also asked a few questions regarding the economic scheduling of power to the end consumers. Then, the resource person started the presentation by introducing the importance of economic load scheduling and various methods available for economic load dispatch problems by minimizing the fuel cost of the generators. For a better understanding, the resource explained the economic load dispatch problem solved using the basic and conventional Lagrange method. During the problem description, he explained the minimization of the fuel cost objective function in detail with the necessary equations and fuel cost coefficients for different generation units. Later, he pointed out the various constraints taken into account to solve the economic load dispatch problem.

After the basic explanation, he explained the importance of integrating renewable energy sources into the system to minimize the fuel cost and the emissions injected into the atmosphere. Further, he demonstrated the calculation of renewable energy sources (i.e., wind and solar) output using appropriate modeling equations. He then explained the procedure to solve the economic load dispatch problem with renewable energy sources using a neat flow chart. To show the effectiveness of economic dispatch problem with renewable energy sources in power system operation and control, the resource person presented the simulation results attained using the Lagrange method to the students for different cases such as conventional generators without renewable energy sources, conventional generators and PV alone, conventional generators and wind alone and at last conventional generators along with all renewable energy sources. He also pointed out the significant reduction in fuel costs after integrating renewable energy sources into the system.

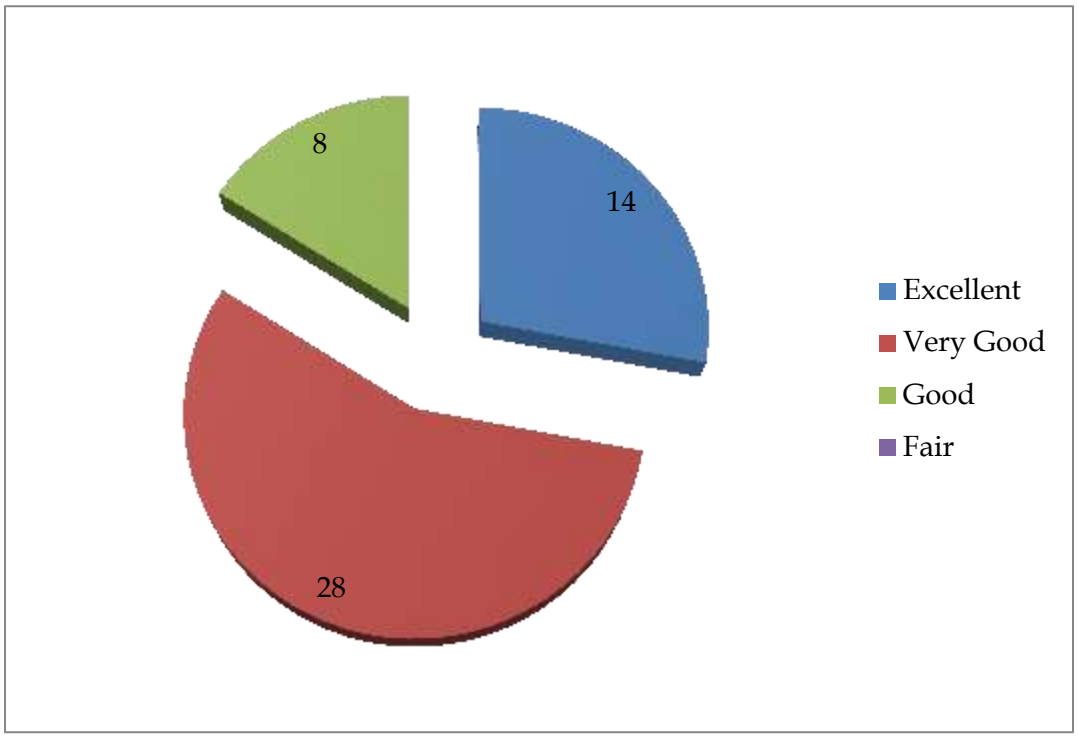
Finally, he gave a deeper insight into thrust areas of research in the economic load dispatch problem and the scope for future research. He also motivated the students to do their projects in economic load dispatch using evolutionary algorithms. He gave useful inputs regarding higher studies in power system engineering in India and foreign countries. In the end, he invited the queries and doubts from the students for discussion and clarification. Students asked some interesting questions, and the resource person clarified their queries with the help of real-time examples.

The guest lecture completely motivated and kindled students' interest in the growing technologies in power system engineering and its positive impact on power system operation. The session was very useful to our student community and provided greater input to their final-year projects. Finally, the Guest Lecture ended with the vote of thanks delivered by Dr.R.Arulraj, AP/EEE.

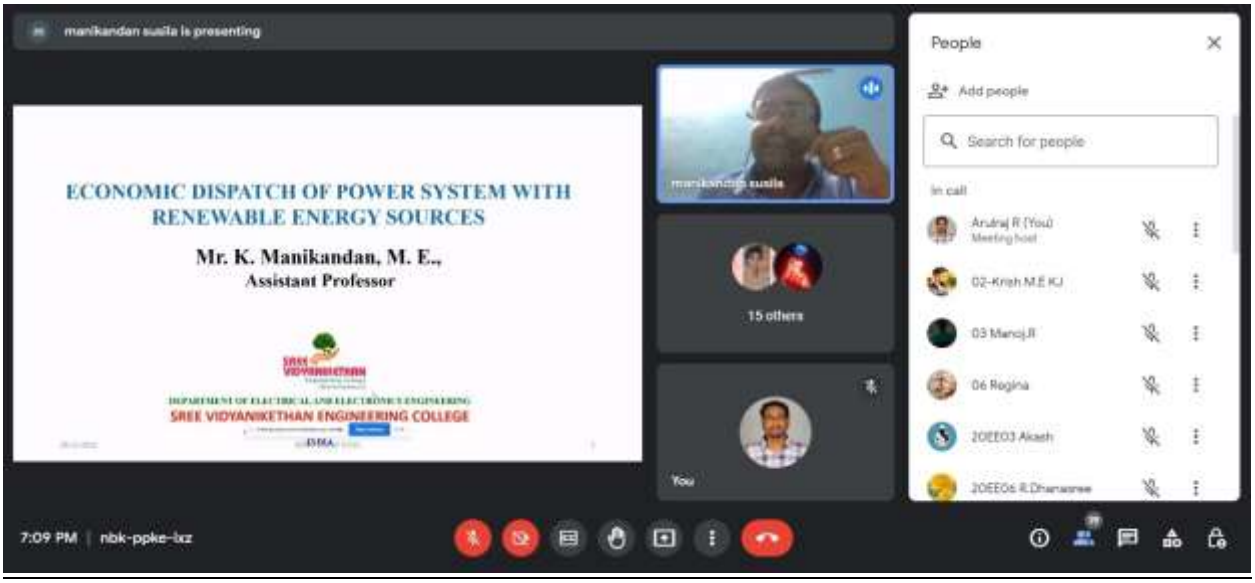
Outcomes:

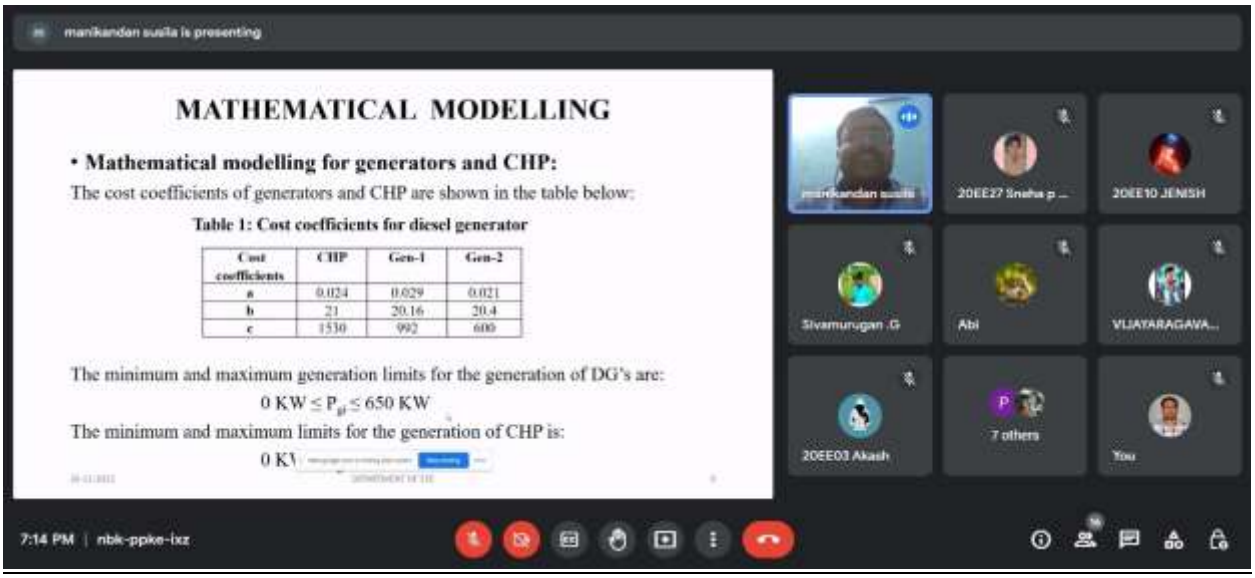
- Students can realize the importance of economic load dispatch in power system operation.
- Students can understand the basic concepts of solving economic load dispatch problems using the Lagrange method.
- Students can realize the impact of renewable energy sources in minimizing the fuel cost and hazardous pollutants emitted into the atmosphere.
- Students can select economic load dispatch problems for their project work, paper publication, conference presentation, and PCE activities.

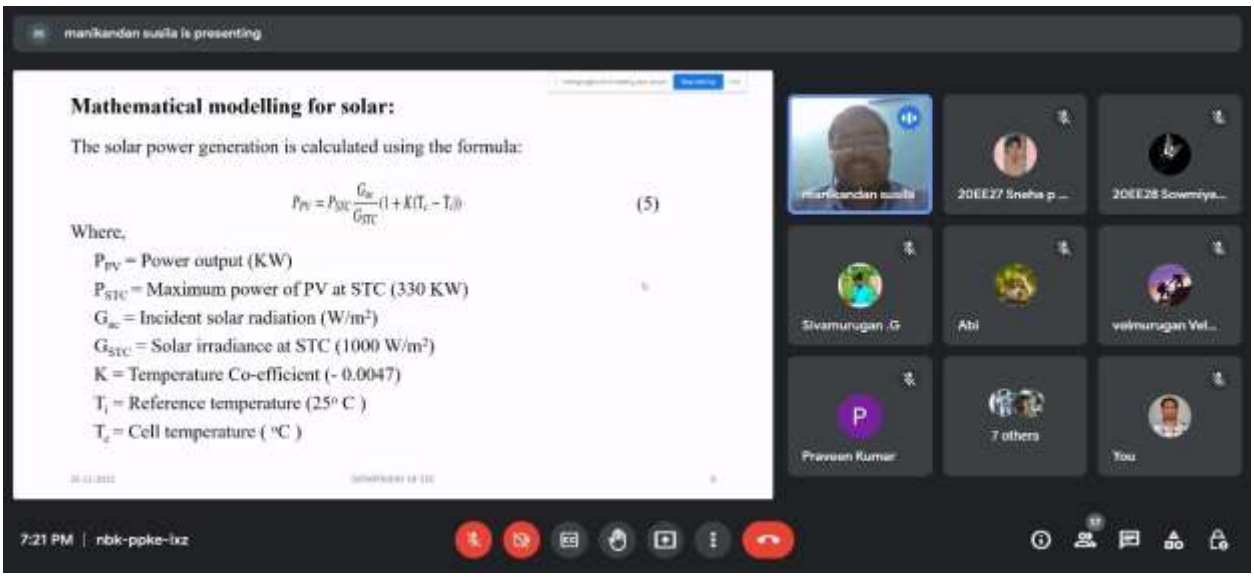
Feedback Analysis:

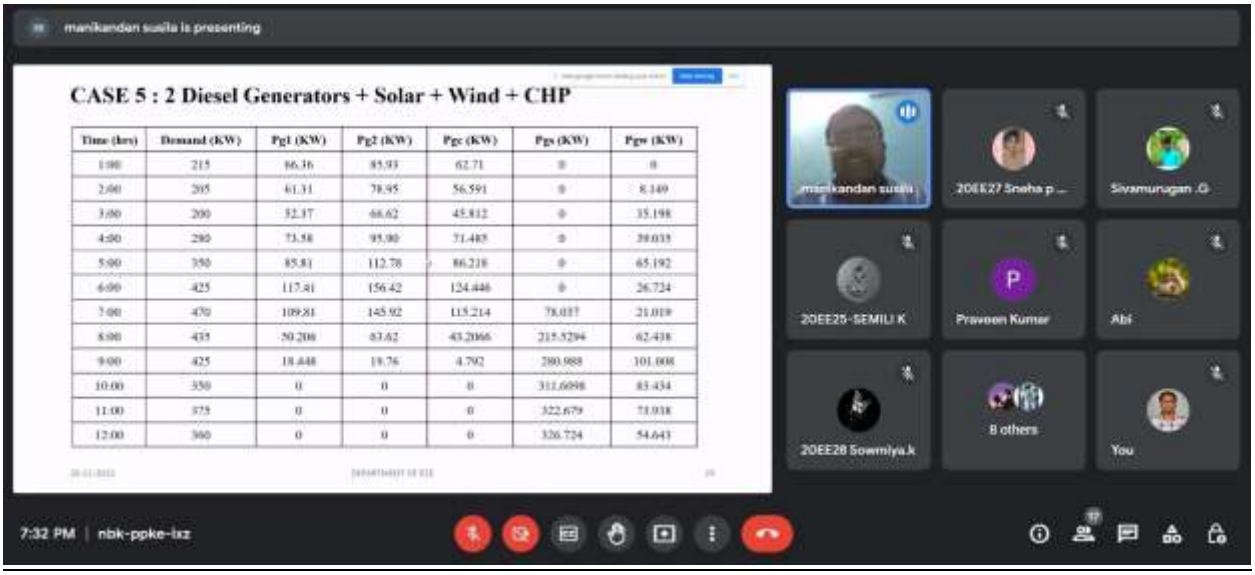


Photographs of Lecture Sessions









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