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Thermal Power Plant Engineering

About the Course

The course provides an overview of coal and gas based thermal power plant, nuclear power plant. It takes a multidisciplinary approach to real life applications and practices of thermal power plant. The course is precisely designed to cover technological advancement in systems and equipment. The course topics Include the system engineering and design aspects, technical features and constructional details of all the major equipment, their auxiliary systems and balance of plant systems.

Key Topics

Indian power scenario | Thermodynamics | Boiler, steam turbine, generator | Balance of plant systems | Gas based power plant | Nuclear power plant | Power plant layout and piping | Electric power generation, evacuation and power distribution within plant | Control and instrumentation systems

Course Objectives

Enables learner to:

- Recall the fundamental principles and concepts related to thermodynamics & power plants
- Understand the basic concept of boiler, steam turbine, generator and different power plants used in electricity generation.
- Apply essential skills and to provide virtual exposure for efficiently handling any equipment
  & systems in an EPC power project or power plant.
- Illustrate electric power generation, evacuation and power distribution within plant, Control and instrumentation systems
- Assess practical knowledge on real-life industrial applications of multidisciplinary technical equipment and systems in thermal power plant and nuclear power plant
- Develop total theoretical & practical knowledge of layout & processes associate with latest technologies and software used in power plant engineering

Learning Outcomes

On successful completion of the course, the learners will be able to:

1. Describe the basic concept of thermodynamics principles used in power plants
2. Explain the fundamentals of boilers, steam turbine, generator and different power plants used in electricity generation.
3. Demonstrate vital skills and to provide virtual exposure for efficiently handling any equipment& systems in power plant.
4. Outline the electric power generation, power distribution, Control and instrumentation systems within a power plant
5. Illustrate design features of modern power plant boiler and its components. Understand the basic construction features and application of Boiler & Auxiliary equipment
6. Integrate the state-of-the-art tools and software used by industry for 3D modelling and layout development.