SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

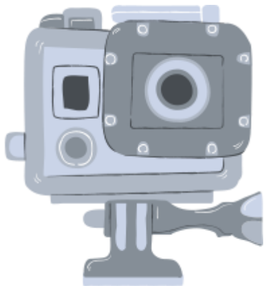
Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

UNIT 1

THERMAL POWER GENERATION

19EET302 – POWER SYSTEM 1
III year / V Semester



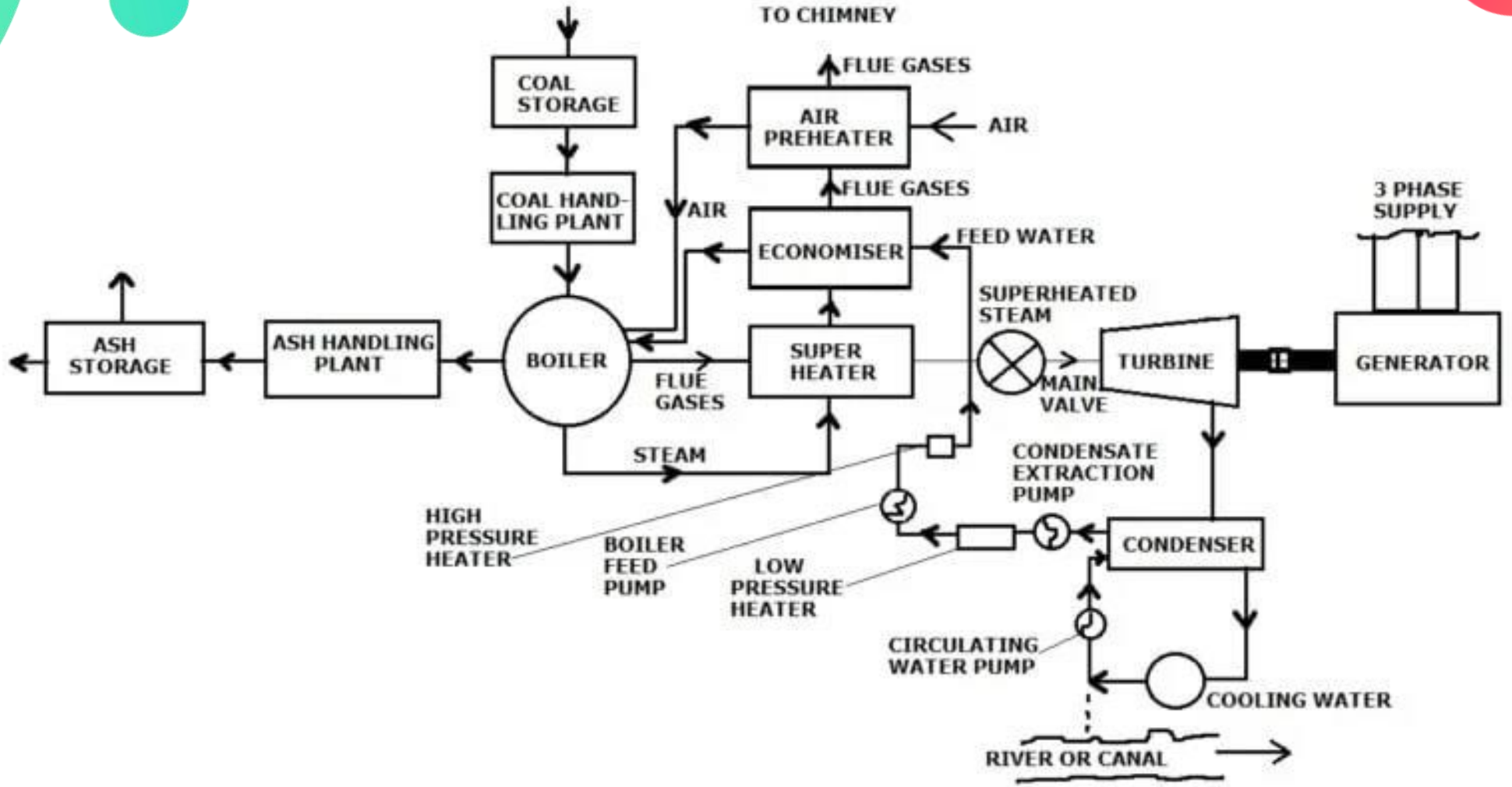
INTRODUCTION

- A Thermal Power Plant converts the heat energy of coal into electrical energy. Coal is burnt in a boiler which converts water into steam. The expansion of steam in turbine produces mechanical power which drives the alternator coupled to the turbine.Thermal Power Plants contribute maximum to the generation of Power for any country.

- Thermal Power Plants constitute 75.43% of the total installed captive and non-captive power generation in India.

- In thermal generating stations coal, oil, natural gas etc. are employed as primary sources of energy.

LAYOUT


TO CHIMNEY
COAL STORAGE
FLUE GASES
AIR PREHEATER
AIR
COAL HAND-LING PLANT
FLUE GASES
AIR
ECONOMISER
FEED WATER
3 PHASE SUPPLY
SUPERHEATED STEAM
ASH STORAGE
ASH HANDLING PLANT
BOILER
SUPER HEATER
TURBINE
GENERATOR
FLUE GASES
MAIN VALVE
STEAM
CONDENSATE EXTRACTION PUMP
HIGH PRESSURE HEATER
BOILER FEED PUMP
LOW PRESSURE HEATER
CONDENSER
CIRCULATING WATER PUMP
COOLING WATER
RIVER OR CANAL

MAIN EQUIPMENTS

- Coal handling plant
- Pulverizing plant
- Boiler
- Turbine
- Condenser
- Cooling towers and ponds
- Feed water heater
- Economizer
- Air preheater

ADVANTAGES:

- The fuel used is quite cheap.
- Less initial cost as compare to other generating stations.
- It can be installed at any place irrespective of the existence of coal. The coal can be transported to the site of plant by rail or roads.

DISADVANTAGES:

- It pollutes the atmosphere due to producing large amount of smoke and fumes.
- Higher maintenance cost and operational cost.

Huge requirement of water.

KEEP
LEARNING..

Thank u

SEE YOU IN NEXT CLASS