

FEMF6303 HEAT POWER ENGINEERING (3-0-0)

Module I (12 Hrs)

Water tube & fire tube boilers, circulating principles, forced circulation, critical pressure, superheaters, reheaters, attemperators, induced draught, forced draught and secondary air fans, boiler performance analysis and heat balance. Combustion systems, environmental protection – esp, cyclone separator, dust collector etc.

Module II (12 Hrs)

Rotary thermodynamic devices – steam turbines & their classifications – impulse & reaction type turbines, thermodynamics of compressible fluid-flow, equation and continuity – isentropic flow through nozzles, velocity diagram, blade efficiency, optimum velocity ratio, multi-staging, velocity & pressure compounding,

Module III (11 Hrs)

losses in turbines, erosion of turbine blades, turbine governing, performance analysis of turbine, condensing system. Ic engines – classification. Analysis of a standard cycle, fuel characteristic of si & ci engine, combustion, engine performance. Automotive engine exhaust emission and their control.

Gas turbine analysis – regeneration - reheating, isentropic efficiency. Combustion efficiency.

Text books:

1. P.k.Nag- Engineering Thermodynamics – TMH ,2nd Ed.
2. P k Nag- power plant engg. - TMH publication
3. P.S. Ballaney- thermal engineering – khanna pub
4. Domkundwar & Arora- power plant engineering – .dhanpat rai & co.

Reference books:

1. Cengel --- Thermodynamics , 3/e ,tmh
2. ET-WAKIL—power plant engineering , mh
3. M W ZEMANSKY & R.H.DITTMAN -heat and thermodynamics – MCGRAW HILL ,7th Ed.