

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: II
Syllabus with Effect from: June - 2010

Paper Code: PS02EINS02	Total Credit: 4
Title Of Paper: Boiler Instrumentation	

Unit	Description in detail	Weightage (%)
I	Boiler Control and Optimization, Boiler Equipment, Role of Sensors, Safety Interlocks, Boiler Dynamics, Boiler types & classification, Deaeration, Boiler Feed Pump, Introduction of Steam Generator / Boiler, Classification of Boiler, Application of Steam,	25%
II	Study of different types of Boilers, IBR & Non-IBR Boilers, Boiler mountings & accessories, Draft system, Basic Steam Generator Control, Traditional Air Control, Feed Water & Drum level control, Steam Pressure control, Steam Temperature control, Fuel control, Furnace draft control, Interaction between Airflow & Furnace pressure, Feed Water Control, Single element, Two element, Three element feed-forward control system	25%
III	Advantages of using Condensers in Power plant, Types of condensers, Introduction of Steam Turbine, Classification of Steam Turbine, Methods to govern Steam Turbine, Turbine – Boiler coordinate system, Types of Pulverizers, Stoker Fired Boiler: Principle, Types & Control systems & Working, Fluidized Bed Combustion (FBC) Types, Advantage of FBC Boilers over Conventional Boiler	25%
IV	Conventional-Fossil Fuel Power Plants: Steam / Thermal, Gas Turbine (GTPP), Diesel & Nuclear Power, GTPP Types, Comparison with Thermal Power Plant & Methods to improve the performance, Non Conventional Power Plants	25%

Basic Text & Reference Books:-

- Process Control (Inst Engineers Handbook), Liptak, Butterworth Heinemann, Elsevier.
- An Introduction to Power Plant Technology, G. D. Rai, Khanna Publisher.
- The Control of Boilers, S. G. Dukelow .
- A Course in Power Plant Engineering, Arora and Domkundwar, Dhanpat Rai & Co.

