Learning Outcomes in Module Report

Module Code	SPC11
Module Name	Combined Heat & Power Systems

Learning Outcomes

Code	Name	Hours	Description
11.0	Combined Heat & Power Systems	6	On completion of this module and associated workbook, the participant should understand the following concepts and be able to apply them in day-to-day work activities. Typical values of heat loss from different types of prime mover. Heat recovery from extraction steam turbines. Heat recovery from back pressure turbines. Heat balance and overall heat utilization with heat recovery. Heat recovery from gas turbines. Combined cycle - gas turbine and steam turbine, with extraction steam for district heating. The application of auxiliary burners to HRSGs. Heat recovery from reciprocating engines. Fluid heat exchangers. Exhaust duct economser. The application of auxiliary boilers for process or district heating. The primary hot water distribution loop, supply and return. Control of district heating (D.H.) supply temperature. Control of engine jacket coolant temperature. The customers' energy transfer station. Control and metering of customer's heat consumption. Installing pre-insulated piping, including alarm and control wiring. The characteristics of steam distribution for district heating. Steam piping and hardware. Types of valves installed on a steam system. Procedures for handling condensate forming in steam lines: a) During start-up. b) While in service. The causes and dangers of water hammer. The need for caution when interconnecting a small private Co-generator(C.H.P.) into a large utility power system. The need for compatibility of voltage control equipment, governor control, and protection equipment.

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Learning Outcomes

Code	Name	Hours	Description
			The need for co-ordination of clearance procedures between the utility and the private generator to prevent hazards to personnel. The need for co-ordination of automatic and manual switching procedures.

Count: 1