

MODULE FOR 10 WEEKS INDUCTION TRAINING PROGRAMME FOR JE (V/S) GSECL

Week	DAY	Session	SUBJECT	
	1	Se-1	Registration	
		Se-2	Inauguration function address by MD saheb: Indian power scenerio and achivement changes & challenges forGSECL	
		Se-3	Plant layout in large central station including machine arrangements, equipments layout, switchyard and auxiliaries arrangements.	
		Se-4	General understanding of basic flow diagram /cycles in power station i.e. coal, oil, air, flue gas, fly ash, bottom ash, condensate, feed water, steam, cw cycles	
	2	Se-1	Operation & maintenance of existing power station of GSECL in stringent & demanding regulatory enviroment	
		Se-2	Fuel resourses management	
		Se-3	Over view ofGSECL HR policies for employees	
		Se-4	Financing existing & new projects of GSECL in highly competitive enviroment	
	3	Se-1	(1)Raw water sources.	
		Se-2	(2) Raw water treatment.	
		Se-3	Construction of coal handling plant, wagon tippler, hoppers, vibration feeder, screen and conveyor system crushers, magnetic separators, and pulley, dust suppressors, dust extractors,	
		Se-4	-Cont.-	
	4	Se-1	(3) DM water plant process in detail	
		Se-2	(4)Chemical dozing in feed water and boiler drum. & scale formation in boiler	
		Se-3	Stacker reclaimr, rotary breakers, merry go round system. fo plant, storage and unloading. coal transportation by different type of ships. coal washing and blending	
		Se-4	-Cont.-	
	W-1	5	Se-1	Coal chemistry i.e. sampling of coal /british standards specification /indian standards.
			Se-2	-Cont.-
			Se-3	SOFT SKILL
			Se-4	Power sceniro in Gujarat and GERC role in the same
6		Se-1	Plant visit to WTPS -PLANT OVER VIEW	
8		Se-1	Coal combustion theory	
		Se-2	-Cont.-	
		Se-3	General arrangement of super heater headers, primary, secondary super heaters, reheaters, and attemperators, sootblowers	
		Se-4	-Cont.-	
9		Se-1	Specification procedure and proximate analysis and coal fineness measurment.	
		Se-2	-Cont.-	
	Se-3	Boiler circulation theory, water wall boiling phenomina ,nucleate / film boiling, natural/		
	Se-4	-Cont.-		
10	Se-1	Constructional details and basic principles, of large pulverized fuel boiler and auxiliaries.		
	Se-2	-Cont.-		
	Se-3	Construction detail of coal mill & coal feeder.		
	Se-4	-Cont.-		
11			Types of furnace firing system, drum, economiser. safety valves.	
	Se-2	-Cont.-		
	Se-3	Coal mill performance.		
	Se-4	-Cont.-		

W-2	12	Se-1	Team Building
		Se-2	
		Se-3	
		Se-4	
	13	Se-1	Plant visit to UKAI- Coal Plant, Boiler,Coal Mill, CW Pump House , DM Plant.
	15	Se-1	Construction and working principle of ash and slag handling equipments, ESP, ash conveying, pneumatic, vacuum tic, hydraulic, conveyors, ash slurry pumps,
		Se-2	-Cont.-
		Se-3	HP/LP pumps. dry fly ash, bottom ash handling, dust extraction plant.
		Se-4	-Cont.-
	16	Se-1	Cold filling of boiler, boiler hydro test,
		Se-2	-Cont.-
		Se-3	Construction , operation & maintenance detail of different type of fans used in power station location of ID/FD/PA/Seal air/G.R fan/ Scanner fan
		Se-4	-Cont.-
	17	Se-1	Preperation for boiler lit up after annual shut down.
		Se-2	-Cont.-
		Se-3	Fan control devices, damper arrangements, primary air, secondary air and flue gas path,wind box & burner arrangements and draught system etc....
Se-4		-Cont.-	
18	Se-1	Various types of fuel firing system and equipments.	
	Se-2	-Cont.-	
	Se-3	Construction detail of air pre heater. scaph & soot blowers .	
	Se-4	-Cont.-	
W-3	19	Se-1	Leadership
		Se-2	
		Se-3	
		Se-4	
	20	Se-1	PLANT VISIT TO WTPS- Boiler, its auxiliaries and AHP
	22	Se-1	PRDS / FO and LDO unloading ,fo pump house ,
		Se-2	-Cont.-
		Se-3	Deareator & feed water cycle,and boiler feed pump construction and operation detail
		Se-4	-Cont.-
	23	Se-1	Construction & working of various type of pumps, classification of pumps,centrifugal & positive displacement pumps.
		Se-2	-Cont.-
		Se-3	Boiler operation, planed shut down , force shut of boiler. boiler lit up. operation & control for boiler start up, operating procedure of boiler under different load conditions.
		Se-4	-Cont.-
	24	Se-1	Steam turbine construction of KWU turbine.
		Se-2	-Cont.-
		Se-3	Steam turbine construction of LMZ turbine.
Se-4		-Cont.-	
25	Se-1	Working principle of turbine.work done in blade.type of turbine.classification and compounding of turbine. losses.rankin cycle.	
	Se-2	-Cont.-	
	Se-3	Diff.expansion of hpt, ipt, lpt, eccentricity, axial shift, vibration , barring gear, critical speed, function of ejector / nash pump, condenser, flange & stud heating.	
	Se-4	-Cont.-	
W-4	26	Se-1	Presentation Skills
		Se-2	
		Se-3	
		Se-4	
	27	Se-1	PLANT VISIT TO GTPS- Boiler, Boiler Feed pumps. PRDS, FO, LDO Pump House.
	29	Se-1	HP /LP by pass system ®enerative feed heating system
		Se-2	-Cont.-
		Se-3	Governing system for KWU turbine with droop characterstic.
Se-4		-Cont.-	

	30	Se-1	Lub oil system, main oil tank & oil purification , oil pumps and oil coolers, seal oil system
		Se-2	-Cont.-
		Se-3	Oil circuit for governing system
		Se-4	-Cont.-
	31	Se-1	H2 cooling system, stator water system
		Se-2	-Cont.-
		Se-3	Governing system for LMW .
		Se-4	-Cont.-
	32	Se-1	Turbine rolling – (hot / warm / cold start)
		Se-2	-Cont.-
		Se-3	Synchronisation and shut down procedure for Turbine , ATRS system.
		Se-4	-Cont.-
W-5	33	Se-1	Types of compressors. erection, testing, commissioning of compressor. operation & maintenance of compressor.
		Se-2	-Cont.-
		Se-3	Wind Power Management
		Se-4	-Cont.-
	34	Se-1	PLANT VISIT TO GTPS.- TURBINE & Auxiliaries.

W-6	36	Se-1	Construction & working principle of condenser condensate cycle and feed water cycle.-CE pump connections, ejectors, gland steam coolers, feed heating system up to dearator locations of valves and inter connections.
		Se-2	-Cont.-
		Se-3	Air conditioning and ventilation system and its operation & maintenance. plant visit at 11.00 hrs.
		Se-4	-Cont.-
	37	Se-1	Construction details of large generator.
		Se-2	-Cont.-
		Se-3	Excitation system and alternators synchronizing, loading parallel operations of alternators,
		Se-4	-Cont.-
	38	Se-1	Generator protection : earth fault , rotor and stator negative phase sequence , loss of excitation ,differential protection ,back up protection ,reverse power protection, under-voltage protection. generator protection : over load protection and over heating of rotors
		Se-2	-Cont.-
		Se-3	Importance of earthing, types & construction of earthing.
		Se-4	-Cont.-
	39	Se-1	Introduction & over view of gas base power station [ccpp],
		Se-2	-Cont.-
		Se-3	Combine cycle power plant start up , shut down details , operation & maintenance planning
		Se-4	-Cont.-
W-6	40	Se-1	Metallurgical aspect in thermal power plant.
		Se-2	-Cont.-
		Se-3	Interpersonal relations & Conflict management
		Se-4	-Cont.-
	41	Se-1	TECHNICAL VISIT OF UGBPS -GAS Turbine Plant & Auxiliaries.
	43	Se-1	Generator transformer construction and testing and commissioning.various transformes used in power plant, type of cooling and fire protection system
		Se-2	-Cont.-
		Se-3	Transformer protection –buchhoz relay ,over current relay, differential and earth fault protection
		Se-4	-Cont.-
	44	Se-1	Circuit breakers and bus bar---- construction, commissioning, o&m
		Se-2	-Cont.-
		Se-3	Out door switch yard single line diagram .bus system, isolators, ct, pt, earthing switch and other equipments.
Se-4		-Cont.-	
45	Se-1	Switch yard & various type of Transformers in power plant.	
	Se-2	-Cont.-	
	Se-3	Switch yard protections	
	Se-4	-Cont.-	
W-7	47	Se-1	Working principle of various types relays & electrical testing in lab
		Se-2	-Cont.-
		Se-3	Cascade tripping and black start procedure
		Se-4	-Cont.-
	48	Se-1	Area load dispatch centre, or state load dispatch centre
		Se-2	-Cont.-
		Se-3	ALDC JAMBUVA & SLDC GOTRI VISIT IN BATCH OF 50 PARTICIPANTS.
		Se-4	-Cont.-

	50	Se-1	AC & DC motors : testing / starting / maintenance
		Se-2	-Cont.-
		Se-3	Electrostatic precipitator (elect.) cbt(computer based training) on electrostatic precipitators.need of fly ash separation,working principle,corrora effects, constructional details and rapping mechanism.
		Se-4	-Cont.-
	51	Se-1	DC power supply & ac power supply (l/t &h/t) for auxiliaries,.arrangements of units and station boards. station lighting and automatic change over
		Se-2	-Cont.-
		Se-3	(1) Station battery –care and maintenance , trickle charging and extended charging(2)
		Se-4	-Cont.-
	52	Se-1	Performance test of generating unit and efficency calculation , and improvement in power generation efficiency.
		Se-2	-Cont.-
		Se-3	Performance, Achive & Trade [pat]
		Se-4	-Cont.-
	53	Se-1	ABT & Grid code
		Se-2	-Cont.-
		Se-3	GERC and Power Purchase Agreements
		Se-4	-Cont.-
W-8	54	Se-1	Effective communications.
		Se-2	
		Se-3	
		Se-4	
	55	Se-1	SWICHYARD VISIT OF WTPS SWITCH YARD
	57	Se-1	Working principle & basics of instrumentation, measurements of pressure, flow, temperature, levels, draught, vibration, eccentricity, conductivity, differential expansion, oxygen analyser, layout of main control room and control pannels
		Se-2	-Cont.-
		Se-3	working principles of auto controllers, data acquisition system, das, digital, distribution control d.d.c. unit co-ordinate master control,
		Se-4	-Cont.-
	58	Se-1	E- urja Overview
		Se-2	E-urja HR Module
		Se-3	E-Urja PO Module
		Se-4	E-Urja Inventory Module
	59	Se-1	E-Urja-OPM Module
		Se-2	E-Urja-EAM Module
		Se-3	E-Urja Fuel Module.
Se-4		E-Urja project Module. & E-Urja Concluding Session.	
60	Se-1	First aid and occupational health	
	Se-2	-Cont.-	
	Se-3	Safety aspect in power station,accidents causes, reporting of accedents and prevention of accedents. use of personal,protective equipments.	
	Se-4	-Cont.-	
W-9	61	Se-1	Lecture of hydro power station (ssnnl)
		Se-2	-Cont.-
		Se-3	SOFT SKILL
		Se-4	-Cont.-
	62	Se-1	VISIT OF SNNL Hydro Power Plant Systems.
	64	Se-1	Energy Conservation and energy audit
		Se-2	-Cont.-
		Se-3	Training on leagal subjects & disciplinary actions, personnel management, duties and responsibilities. labour laws, and labour welfare factory act.
		Se-4	-Cont.-
	65	Se-1	Classificiation of fire. and extinction method and use of various fire fighting equipments and system.
Se-2		-Cont.-	
Se-3		Air pollutions, statutory, regulation concerning power station environmental pollutions act/regulation, general out line for efficiency and environment g.p.c.b. requirements, stack, emission monitoring and ambient air quality.	
Se-4		-Cont.-	

	66	Se-1	Utilisation of fly ash
		Se-2	-Cont.-
		Se-3	Disastar management & ohsas
		Se-4	-Cont.-
	67	Se-1	ISO awareness -9001:2008
		Se-2	-Cont.-
		Se-3	ISO awareness:14001:2004
		Se-4	-Cont.-
W-10	68	Se-1	WRITTEN EXAM
		Se-2	-Cont.-
		Se-3	WRITTEN EXAM
		Se-4	-Cont.-
	69	Se-1	ORALEXAM / Group Discussion
		Se-2	-Cont.-
		Se-3	FEED BACK, VALEDICTORY FUNCTION
		Se-4	