

Training Programs for Power System Operators and Certification Examination

Basic and Specialized level Training Program for Power System Operators of LDCs:

Operation of an interconnected Power System in India is coordinated through the State, Regional and National Load Despatch Centres in collaboration with the generation and transmission control centres. Prompt action by the System Operator during minute-to-minute operation as well as a system emergency is vital for the reliability of power system. In this regard, the regulation 5.1 (h) of the Indian Electricity Grid Code mandates that the control room of the National, Regional and State Load Despatch Centre, power plants, substations of 132 kV and above, and other control centres of all regional entities shall be manned round the clock by qualified and adequately trained personnel. Further, CERC in its order dated 7th May 2008 in suo motu petition 58/2008, endorsed the need for appropriately skilled operators for secure operation of power system in India in the scenario of continuous load growth, system expansion and multiplying number of organizations.

With this objective, Ministry of Power, Govt. of India has made it mandatory that all Graduate Engineers manning the Load Despatch Centres and required to be certified for Level 1 competency of System Operation. With an objective to train the Graduate Engineers in System Operation aspects with exposure on generation, transmission, distribution, protection, electricity markets and management to enable them to man the Load Despatch Centres with confidence, with an approval from Central Electricity Authority, NPTI announced a set of Specialized Short Term Courses for executives of Load Despatch Centres at its Institutes at PSTI, Bangalore, Fardabad and Guwahati. Thus the “Framework of Training and certification of System Operators” was introduced in the year 2011, with an objective that all LDCs are staffed with trained and certified Operators. These specially designed training programs are on; Basic Level Course on “**Power System Operation**” and Specialist level courses for Certified System Operators on “**Regulatory Framework**”, “**Power System Reliability**”, “**Power System Logistics**”, “**Renewable Energy Sources and Grid Integration Issues**” and “**Power Market Specialist**”. The programs include topics on System Frequency and Tie Line Control, System Voltage Control, Resource Scheduling, System Security, Protection Coordination and Insulation Coordination, System Restoration, SCADA/ EMS, Disturbance Analysis, Power System Reliability, Power System Optimization, Commercial and Economic Aspects, Legal Framework, Policies and Regulations, System Operation-International Practices, Electricity Markets etc.

Sl. No.	Name of the Training Program	Duration	No. of Training Programs conducted	No. of Persons Trained
1	Basic Level Course on “ Power System Operation ”	3 weeks (19 days)	75	2273
2	Specialist level course on “ Regulatory Framework ”	2 Weeks (12 days)	04	47
3	Specialist level course on “ Power System Reliability ”	2 Weeks (12 days)	18	400
4	Specialist level course on “ Power System Logistics ”	2 Weeks (12 days)	04	66
5	Specialist level course on “ Renewable Energy Sources and Grid Integration Issues ”	2 Weeks (12 days)	11	204
6	Specialist level course on “ Power Market Specialist ”	2 Weeks (12 days)	04	142

Basic and Specialized level Certification Examination:

A committee set up by the Govt. of India under the Chairmanship of Shri. G.B. Pradhan, the then Addl. Secretary, MoP, recommended setting up of a system of certification of System Operators by an independent Central body. The National Power Training Institute has been entrusted with the responsibility of conducting the certification exams. Thereafter the combined committee for training and certification under the Chairmanship of Shri S. M. Dhiman, the then Member, Central Electricity Authority, suggested three levels of certification viz. 'BASIC LEVEL', 'SPECIALIST LEVEL' and 'MANAGEMENT LEVEL'. It is recommended that the certification authority may conduct the online examination for all the three levels of certification on periodic basis. This document provides the details of the Basic Level System Operator Certification Program as envisaged by National Power Training Institute for certification of personnel working in Load Despatch Centres in India.

As per the recommendation of the various committees'/task forces constituted by the Ministry of Power/Central Electricity Authority, NPTI to start with is presently offering this program for 'BASIC LEVEL' certification of System Operators in India. The 'BASIC LEVEL' certification is a mandatory requirement. NPTI has conducted NINE National Level On-line Examinations for "Basic Level" certification of Load Despatch Operators so far. Also SIX Specialist Level On-line Exams have been conducted viz. "Regulatory Fame work in Power Sector" (in 2013, 2016 & 2019), "Power System Reliability" (in 2015 and 2017) and "Power System Logistics" (in 2017). The certification examination for 'MANAGEMENT LEVEL' shall be introduced subsequently.

Details of Basic Level Certification Examination on "Power System Operation

Sl.No.	Name of Examination	Conducted	No. of Successful candidates	No. of candidates appeared	Validity	
					From	To
1	1st System Operator Examination	06.11.2011	266	324	01.12.2011	30.11.2014
2	2nd System Operator Examination	16.12.2012	240	303	01.01.2013	31.12.2015
3	3rd System Operator Examination	13.07.2014	137	185	01.08.2014	31.07.2017
4	4th System Operator Examination	01.11.2015	256	299	01.01.2016	31.12.2018
5	5th System Operator Examination	11.12.2016	134	156	01.01.2017	31.12.2019
6	6th System Operator Examination	25.03.2018	162	223	01.04.2018	31.03.2021
7	7th System Operator Examination	31.03.2019	334	433	01.04.2019	31.03.2022
8	8th System Operator Examination	03.04.2022	498	578	01.04.2022	31.03.2025
9	9th System Operator Examination	23.07.2022	180	194	01.08.2022	31.07.2025
10	10th System Operator Examination	26.03.2023	281	151	01.01.2023	31.03.2026
11	101th System Operator Examination	31.03.2024	173	139	01.04.2024	31.03.2027
Total number of certified System Operators				2497		

**Details of Specialized Level Certification Examination on
“Regulatory Framework in Power Sector”**

Sl.No.	Name of Examination	Conducted	No. of Successful candidates	No. of candidates appeared	Validity	
					From	To
1	1st Regulatory Framework in Power Sector	17.03.2013	93	181	01.04.2013	31.03.2016
2	2nd Regulatory Framework in Power Sector	28.02.2016	67	72	01.03.2016	28.02.2019
3	3rd Regulatory Framework in Power Sector	17.03.2019	100	176	01.04.2019	31.03.2022
Total number of certified System Operators			260			

Details of Specialized Level Certification Examination on “Power System Logistics”

Sl.No.	Name of Examination	Conducted	No. of Successful candidates	No. of candidates appeared	Validity	
					From	To
1	1st Power System Logistics	26.11.2017	23	44	01.12.2017	30.11.2020
Total number of certified System Operators			23			

Details of Specialized Level Certification Examination on “Power System Reliability”

Sl.No.	Name of Examination	Conducted	No. of Successful candidates	No. of candidates appeared	Validity	
					From	To
1	1st Power System Reliability	01.02.2015	77	106	01.03.2015	28.03.2018
2	2nd Power System Reliability	02.07.2017	49	92	15.07.2017	14.07.2020
3	3 rd Power System Reliability	07.01.2024	57	74	01.02.2024	31.01.2027
Total number of certified System Operators			183			

This is evident that Load Despatch Centres play a key role in ensuring reliable operation of the country’s electricity grid besides ensuring economy and efficiency in operation. As India navigates the energy transition in the coming years, the role of LDCs would become more and more important and challenging. Thus, it is important that all the LDCs are staffed with qualified personnel only.

In view of the challenging task of the Load Dispatchers in the country, it has been decided by Ministry of Power, Govt. of India that all Load Dispatchers must be trained and certified based on their professional assignment in the Load Despatch Centre. Through an Office Memorandum No. 13/3/2019-OM-Part (1), dated: 23rd March, 2022, about ‘Mandatory Certification for Personnel posted in Load Despatch Centres (NLDC/RDLCs/SLDCs)’, Ministry of Power, Govt. of India has made it mandatory that only the personnel with at least basic level certification shall be posted in the control room of the Load Despatch Centres. In addition to this, the Specialist Level certificate shall also be obtained within one year to continue his posting in the control room. The certificate should be renewed every 03 years.