Selection Process & Exam Pattern

Assistant Executive (Operation) — Advt. No. 05/2026

1. Selection Process Overview

NTPC AE (Operation) 2026 is an experience-based recruitment. The primary shortlisting is done on the basis of educational qualification, percentage of marks, and relevant work experience. Based on the number of applicants, NTPC management reserves the right to conduct a multi-stage selection process.

Stage	Process	Basis
Stage 1	Application Shortlisting	Marks % + Experience Quality + Category
Stage 2	Written / Computer-Based Test (If required)	Technical Knowledge + Aptitude (Conducted only if applicants exceed threshold)
Stage 3	Personal Interview	Technical + HR Round — Shortlisted candidates only
Stage 4	Document Verification	All original documents verified at this stage
Stage 5	Medical Examination	At NTPC Hospitals — Final step before joining

Important Note: If the number of candidates is large, management may use application shortlisting/screening based on qualification/marks percentage, years of experience, written/computer-based test, personal interview, or a combination thereof.

2. Written / Computer-Based Test Pattern (If Conducted)

NTPC has not released a fixed exam pattern for this recruitment as selection is primarily experience-based. However, based on previous NTPC AE/ET recruitment patterns, the expected exam structure is as follows:

Section	Topics	Expected Questions	Marks
Technical (Core Engineering)	Mechanical / Electrical Engineering (Based on applied branch)	60–70	60–70
General Aptitude	Quantitative Aptitude, Logical Reasoning, Verbal Ability	20–30	20–30
General Knowledge / Current Affairs	General Awareness, Science & Technology, Power Sector Updates	10–15	10–15
	TOTAL (Approx.)	**90–100**	**90–100**

Duration: Approx. 90 minutes | **Type:** Objective / MCQ | **Medium:** English | **Negative Marking:** As per NTPC discretion

3. Technical Syllabus — Mechanical Engineering

Thermodynamics & Power Plant Engineering

Rankine cycle, Brayton cycle, heat engines, boiler types, steam turbines, condensers, cooling towers, plant efficiency, thermal power plant layout, combined cycle plants.

Fluid Mechanics & Hydraulic Machines

Properties of fluids, Bernoulli's equation, pipe flow, pumps (centrifugal, reciprocating), compressors, turbines, cavitation, NPSH.

Engineering Mechanics & Machine Design

Statics and dynamics, stress-strain, fatigue, shafts, gears, bearings, couplings, springs, design under various loading conditions.

Heat Transfer & Refrigeration

Conduction, convection, radiation, heat exchangers (types and LMTD), fins, refrigeration cycles, air conditioning basics.

Industrial Safety & Maintenance

Lock-out/Tag-out (LOTO), PTW (Permit to Work) system, safety regulations, preventive maintenance, condition monitoring, vibration analysis, lubrication.

Operations & Electrical Basics

Reading P&ID; drawings, DCS basics, switchgear fundamentals, relay protection, motor controls, grounding, basic instrumentation.

3b. Technical Syllabus — Electrical Engineering

Power Systems

Generation, transmission, distribution, load flow analysis, fault analysis (symmetrical & asymmetrical), power factor correction, HVDC basics.

Electrical Machines

DC machines, induction motors, synchronous machines, transformers (types, equivalent circuit, testing), special machines.

Control Systems & Instrumentation

Transfer functions, Bode plots, Nyquist criteria, PID controllers, sensors and transducers, measurement systems, DCS/SCADA basics.

Power Electronics & Drives

Rectifiers, inverters, choppers, motor drives (VFD), UPS systems, battery chargers.

Protection & Switchgear

Relay types and their coordination, circuit breakers, isolation devices, bus protection, transformer protection, generator protection.

Plant Operations

Switching operations, earthing systems, SOP compliance, shift log maintenance, emergency procedures.

4. General Aptitude Syllabus

Quantitative Aptitude	General Reasoning	Verbal Ability
Number System, HCF/LCM	Series & Sequences	Reading Comprehension
Percentage, Profit & Loss	Coding-Decoding	Sentence Correction
Ratio & Proportion	Blood Relations	Synonyms & Antonyms
Time & Work, Speed	Direction Sense	Fill in the Blanks
Averages, Mixtures	Syllogisms	Para Jumbles
Data Interpretation	Odd One Out	Idioms & Phrases

5. Personal Interview — What to Expect

The personal interview evaluates both technical competence and fitment for the role. Based on typical NTPC interview patterns, prepare for the following:

Area	What to Prepare
Technical Questions	Core subject concepts based on your B.E./B.Tech branch; expect practical scenario-based ques
Experience-Based Questions	"Describe your current role", "What is the capacity of your current plant?", "Explain a challenge y
NTPC-Specific Questions	"Why NTPC?", "Are you ready for shift duty?", "Are you open to pan-India transfer?" — Be hones
HR & Behavioral Questions	Teamwork scenarios, handling pressure, night shift readiness, relocation willingness.
Current Affairs — Power Sector	India's power capacity targets (149 GW by 2032), renewable energy, NTPC subsidiaries, recent

6. Recommended Books & Resources

Subject	Book / Resource	Author / Source
Thermodynamics	Engineering Thermodynamics	P.K. Nag
Fluid Mechanics	Fluid Mechanics & Hydraulic Machines	R.K. Bansal
Electrical Machines	Electrical Machines	I.J. Nagrath & D.P. Kothari
Power Systems	Modern Power System Analysis	Nagrath & Kothari
Control Systems	Control Systems Engineering	Nagrath & Gopal
Quantitative Aptitude	Quantitative Aptitude	R.S. Aggarwal
Reasoning	A Modern Approach to Verbal Reasoning	R.S. Aggarwal
Power Plant Ops	Power Plant Engineering	P.K. Nag / Black & Veatch
Current Affairs	Monthly magazines & power ministry updates	Online/PIB