

TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED

HRD – Induction Training programmes to the Newly recruited Assistant Engineers - Electrical / Civil by the Training Institutes for the year 2019-20 – Approval accorded .

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(Routine) CMD TANGEDCO Proceedings No. 24 (Tech. Branch) Date: 11.07.2019

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Thiruvalluvar Aandu 2050.  
Vihari varudam, Aani -26

- READ: 1. CE/Personnel office Letter No No.036904 / G.13 / G.131 / 2019, dt 29.05.2019 and  
2. Letter No.036695 / 437 / G.15 / G.151 / 2019-1,dt 29.05.2019.  
3. Note approved by CMD on 06.07.2019

PROCEEDINGS:

TANGEDCO has recruited 325 Assistant Engineers (Electrical – 300 and Civil – 25) and allotment orders have been issued vide Chief Engineer/Personnel letters read above.

TNEB Training Policy emphasize on Training and Development of employees with a view to equip them and make capable of contributing to the growth and performance of the organization. Hence Induction Training Programme is imparted to all category of employees at the time of entry, which is necessary for the individuals to know about their functions, Goals and roles/responsibilities in the organization.

Accordingly, the newly recruited Assistant Engineers shall be imparted training in Distribution, Transmission, Thermal, Hydrel, Administration & Management skills at our training institutes in the following manner.

i) The newly recruited Assistant Engineers / Electrical (Trainees) with 5 weeks Induction training Programme in 10 batches ( 2 weeks at Transmission & Distribution, Training & Development Institute, Madurai, 1 week at Hydro training Institute, Kuthiraikkalmedu, 1week at Thermal training Institute, North Chennai and 1 week at Staff Training College, Chennai ) with participants as shown in Annexure – I (A-J ) at 4 Training institutes .

ii) The newly recruited Assistant Engineers / Civil (Trainees) will undergo training in a batch for 3 weeks with participants as shown in Annexure – I (K). ( 2 weeks at Hydro training Institute, Kuthiraikkalmedu and 1 week at Staff Training College, Chennai ).

iii) Accordingly Syllabus (Annexure – II (A-F)) & Estimate (Annexure – IV (A-F)) were evolved .

After careful consideration, approval is accorded for the following.

1) To impart Induction training for the newly recruited **300 AEs / Electrical** who have joined in various Generating stations and Distribution circles for **5 weeks** with 30 participants per batch.

2) To impart Induction training for the newly recruited **25 AEs / Civil** who have joined in various Generating stations and Distribution circles for **3weeks** with 25 participants per batch.

3) To approve the rates proposed for Hiring of Laptop, LCD Projector, Screen, Hall, Kitchen Utensils, only for the induction training to be conducted for the year 2019-20 (Annexure –V).

4) To incur a total expenditure works out to Rs. 79,29,550/- expenditure (Rupees Seventy nine lakhs twenty nine thousand five hundred and fifty only) for conducting the Induction Training Programme at the Training Institutes as shown in Annexures IV ( A to F ).

5) To commence the Induction Training Programme, tentatively from the third week of July 2019 at all Training Institutes as per the schedule detailed in Annexure – III.

6) The officers authorized to arrange for making payment in respect of the training institutes by opening temporary advance in the name of the officers nominated by the DGM are detailed in the Annexure – VI.

7) The expenditure is debitible to TNEB funds-Revenue expenses – Training expenses 76.154 – Training to TANDGECO personnel.

(BY ORDER OF THE CHAIRMAN CUM MANAGING DIRECTOR)

Sd/-11.07.2019  
CHIEF ENGINEER/I.C, R&D (i/c)

Encl: Annexures I to V.

To

The Chief Engineer/I.C., R & D

Copy to the Managing Director/TANTRANSCO, Chennai.  
Copy to the Director/Generation/TANGEDCO, Chennai.  
Copy to the Director/Distribution/TANGEDCO, Chennai.  
Copy to the Director/ Projects/TANGEDCO, Chennai.  
Copy to the Director/Operation/TANTRANSCO/Chennai.  
Copy to the Director/Transmission Projects/TANTRANSCO, Chennai.  
Copy to the Director/Finance/TANGEDCO, Chennai.  
Copy to the Director/Finance/TANTRANSCO, Chennai.  
Copy to the Secretary/TANGEDCO, Chennai.  
Copy to the EA to CMD's Office.  
Copy to the EA to JMD's Office.  
Copy to all the Chief Engineers.  
Copy to the Chief Financial Controller/General/ TANGEDCO, Chennai.  
Copy to the Chief Financial Controller/Revenue, Chennai.  
Copy to the Chief Financial Controller/Tariff Cell, Chennai.  
Copy to the Chief Financial Controller/TANTRANSCO, Chennai.  
Copy to the Chief Internal Audit Officer/Chennai.  
Copy to all the Superintending Engineers  
Copy to all the Deputy General Manager/Training Institutes.  
Copy to all the Senior Manager/Training Centers.  
Copy to the Assistant Personnel Officer /Unit.II/Tech.Branch/Chennai.2  
Copy to the Assistant Personnel Officer /Tamil Development for Publication  
in TNEB Bulletin.  
Copy to B.P. Section

**ANNEXURE I-A**

LIST OF ASSISTANT ENGINEERS/ELEC (TRAINEE) BY DIRECT RECRUITMENT 2019-20

Sl.No.	Ins.	Name	Date of Birth	Allotted Circle	Date of Joining
1		GOWTHAMKUMAR.R	6/15/1991	ERODE EDC	04.06.2019
2		SATYA KUMAR BEHERA.MR	2/2/1990	NCTPS II	14.06.2019
3		HARINATH.P	7/16/1992	DINDIGUL EDC	01.06.2019
4		KIRUTHIKA.M	6/10/1994	ERODE EDC	04.06.2019
5		PRASANTH.R	10/20/1993	MTPS I	03.06.2019
6		PRIYANGA.M	9/4/1995	THIRUPPUR EDC	06.06.2019
7		PRIYADHARSHINI.N	6/26/1991	CHENNAI CENTRAL EDC	31.05.2019
8		NIMMALAMEHER SANTHOSH	7/17/1992	NCTPS II	12.06.2019
9		JINURAJ.T	4/19/1995	RAMNAD	06.06.2019
10		PRIYA.J	11/19/1988	NILGIRIS EDC	03.06.2019
11		RAVI BABU.S	8/13/1992	NCTPS II	12.06.2019
12		NAVRIN AASHIKA.A	7/14/1996	THIRUNELVELI EDC	06.06.2019
13		SUPARNA .M DAS	10/21/1989	THIRUNELVELI EDC	03.06.2019
14		SARASWATHI.S	5/2/1994	CHENNAI CENTRAL EDC	20.06.2019
15		PRABU .M	2/20/1994	THIRUPATHUR EDC	03.06.2019
16		VENKATESHWARAN.B	7/19/1980	PUDUKOTTAI EDC	03.06.2019
17		ASHWANTH.L	3/6/1995	NCTPS II	31.05.2019
18		SONI KUMARI.S	10/2/1992	CDC/TANGEDCO	14.06.2019
19		PRABAHARAN.T	10/17/1992	PERAMBALUR EDC	07.06.2019
20		SIVA KRISHNA.A	5/10/1994	NCTPS II	15.06.2019
21		VASANTHAN.K	5/22/1993	MTPS I	12.06.2019
22		VADIVELU.S	7/5/1990	THIRUPPUR EDC	07.06.2019
23		GURU PRASAD REDDY.V	6/10/1991	NCTPS II	15.06.2019
24		SELVAKUMAR.C	5/25/1993	NAMAKKAL EDC	01.06.2019
25		KARTHI.R	10/4/1996	KRISHNAGIRI EDC	03.06.2019
26		SUMANCHANDRAN.D	11/8/1990	VILLUPURAM EDC	13.06.2019
27		AWIN GUPTA	4/19/1995	NCTPS II	06.06.2019
28		MUTHUMANI.S	3/18/1995	NAMAKKAL EDC	20.06.2019
29		RANGARAJAN .M	7/24/1991	MTPS I	01.06.2019
30		SHESHATHRI.P	1/9/1993	NCTPS I	07.06.2019

Sd/-11.07.2019  
Additional Chief Engineer/HRD

**ANNEXURE I-B**

## LIST OF ASSISTANT ENGINEERS/ELEC (TRAINEE) BY DIRECT RECRUITMENT 2019-20

Sl.No.	Ins	Name	Date of Birth	Allotted Circle	Date of Joining
1		ARTHANARISELVI.K	5/30/1990	UDUMALPET EDC	03.06.2019
2		PARASHURAM .T	6/10/1994	NAGAI EDC	03.06.2019
3		DHIVYA.S	8/16/1993	KARUR EDC	31.05.2019
4		DEEPAN.B	5/29/1989	NAMAKKAL EDC	31.05.2019
5		DHIVYA.A	1/10/1991	VELLORE EDC	13.06.2019
6		GIRIVASAN.R	11/20/1994	THIRUPATHUR EDC	07.06.2019
7		MANGALA BHARGAVA KUMAR.M	5/30/1992	NCTPS II	17.06.2019
8		JAYASREE.J R	5/15/1996	THIRUNELVELI EDC	31.05.2019
9		PRASANTH .R	5/26/1994	GEN/ERODE	10.06.2019
10		PALLAVARAJAN.C A	11/25/1985	CUDDALORE EDC	17.06.2019
11		SATHYANANDHAN.L	12/17/1993	NILGIRIS EDC	03.06.2019
12		PRATHIK.M	4/3/1985	MTPS I	07.06.2019
13		PUVANESWARI.R	9/10/1996	VILLUPURAM EDC	07.06.2019
14		VALIYULLAH KHAN.F	8/17/1990	NCTPS I	06.06.2019
15		SREENIVASARAJU.S	3/13/1995	NCTPS II	15.06.2019
16		UMAMAHESWARI.V	3/26/1983	NAGAI EDC	03.06.2019
17		AMSAVENI .S	5/4/1993	THIRUNELVELI EDC	03.06.2019
18		ROJA.S	6/28/1993	PERAMBALUR EDC	06.06.2019
19		JANANI.V	10/5/1992	SALEM EDC	06.06.2019
20		ANANDAN.T	7/31/1988	THIRUPPUR EDC	06.06.2019
21		GEDDAMYUGANDHAR.G	6/9/1992	NCTPS II	13.06.2019
22		GOPI.S	12/15/1990	MTPS I	15.06.2019
23		ROHINI.V	11/6/1991	VELLORE EDC	10.06.2019
24		SANGAVI.P	2/19/1996	CHENNAI/SOUTH II	13.06.2019
25		IMMACULATE PRICILLA.A	5/17/1995	TRICHY METRO	30.05.2019
26		HARIBHASKAR.S	9/13/1993	CHENGALPATTU EDC	07.06.2019
27		UDHAYAKUMAR.E	1/30/1991	THIRUVANAMALAI EDC	03.06.2019
28		GOPALAKRISHNAN.S	6/13/1991	CUDDALORE EDC	01.06.2019
29		KEERTHIKA.S	3/12/1995	MADURAI EDC	01.06.2019
30		GOKUL.R	12/12/1992	MTPS I	01.06.2019

Sd/-11.07.2019  
Additional Chief Engineer/HRD

**ANNEXURE I-C**

## LIST OF ASSISTANT ENGINEERS/ELEC (TRAINEE) BY DIRECT RECRUITMENT 2019-20

Sl.No.	Ins.Sl.No	Name	Date of Birth	Allotted Circle	Date of Joining
1		BASKAR.T	7/5/1994	VIRUDUNAGAR EDC	01.06.2019
2		RATHIKA.T	7/21/1993	NAMAKKAL EDC	01.06.2019
3		KOUSALYA.D	4/15/1991	CUDDALORE EDC	01.06.2019
4		SARATH KUMAR.S	5/21/1995	MTPS I	03.06.2019
5		DINESH.W	5/31/1996	PALLADAM EDC	03.06.2019
6		VISHNUSANKAR.K	11/21/1993	VIRUDUNAGAR EDC	03.06.2019
7		SANGEETHA.S	5/7/1989	KRISHNAGIRI EDC	03.06.2019
8		NAGALAKSHMI.C	8/21/1996	VIRUDUNAGAR EDC	01.06.2019
9		PRAVIN KUMAR.R	9/18/1993	CUDDALORE EDC	12.06.2019
10		VAMSI KRISHNA.YELE	5/20/1994	GEN/KUNDAH	15.06.2019
11		ANU .S	8/25/1993	KRISHNAGIRI EDC	03.06.2019
12		ELANGOVA .S	1/30/1985	THIRUPPUR EDC	06.06.2019
13		KALAIYARASAN.K	2/27/1991	DHARMAPURI EDC	30.05.2019
14		RAJASHREE .S	12/19/1993	NAMAKKAL EDC	01.06.2019
15		KUMARESH.M	6/19/1996	KARUR EDC	06.06.2019
16		ARAVINTHAN A	4/19/1994	NAGAI EDC	06.06.2019
17		NAVANEETHA .M	6/15/1992	DHARMAPURI EDC	31.05.2019
18		SARANYA.T	4/30/1992	NILGIRIS EDC	06.06.2019
19		NIRANJANI.J	11/18/1993	SALEM EDC	07.06.2019
20		DEEPAK KUMAR.NILL	12/16/1993	THIRUPPUR EDC	19.06.2019
21		RAVINDRA.CH	6/10/1994	THIRUPPUR EDC	19.06.2019
22		ESWARAN.M	7/10/1995	ERODE EDC	04.06.2019
23		ANITHA.R	7/6/1994	THIRUNELVELI EDC	19.06.2019
24		DHANDAPANI.T R	7/29/1992	NCTPS II	20.06.2019
25		LOKKESH.R G	12/31/1995	PALLADAM EDC	06.06.2019
26		PRADEEP.P	4/10/1993	CHENGALPATTU EDC	06.06.2019
27		MALAVIKA.M	7/30/1994	KRISHNAGIRI EDC	14.06.2019
28		BHARATH.R	2/11/1995	GEN/ERODE	10.06.2019
29		GHAYATHRI.T	5/21/1996	METTUR EDC	13.06.2019
30		JENNIFER SAGAYA RANI.A	7/27/1988	CDC/TANGEDCO	03.06.2019

Sd/-11.07.2019  
Additional Chief Engineer/HRD

**ANNEXURE I-D**

## LIST OF ASSISTANT ENGINEERS/ELEC (TRAINEE) BY DIRECT RECRUITMENT 2019-20

Sl.No.	Ins.Sl.No	Name	Date of Birth	Allotted Circle	Date of Joining
1		KALAIMARAN.S	6/5/1993	VIRUDUNAGAR EDC	03.06.2019
2		POOVIZHI.I	12/28/1988	DHARMAPURI EDC	31.05.2019
3		SUNDHARAMOORTHI.M	6/6/1995	PALLADAM EDC	04.06.2019
4		HARIHARAN.T	4/16/1984	MTPS I	03.06.2019
5		ROYNA DAISY.V	9/17/1980	METTUR EDC	13.06.2019
6		AJEY VIGNESH.M S K	7/5/1995	GOBI EDC	06.06.2019
7		YOGESH.M	1/5/1992	THENI EDC	12.06.2019
8		SATHISH KUMAR.M	10/30/1994	COIMBATORE SOUTH EDC	06.06.2019
9		VARSHINI.P R	6/6/1983	MADURAI EDC	01.06.2019
10		SIVARANJANI .K	5/31/1991	PERAMBALUR EDC	06.06.2019
11		AZEEMA.S	10/15/1995	METTUR EDC	15.06.2019
12		VINOTH.S	6/4/1990	PALLADAM EDC	06.06.2019
13		THIRUMOORTHI.A	6/11/1995	GOBI EDC	03.06.2019
14		UDHAYA SHANKAR.M	12/11/1989	MTPS I	04.06.2019
15		VINODH.G	6/23/1986	PALLADAM EDC	06.06.2019
16		INIYAVAN.M	5/22/1980	GCC/COIMBATORE	06.06.2019
17		RAMYA.R	12/10/1992	DHARMAPURI EDC	03.06.2019
18		VIDHYA.M	2/4/1990	NAMAKKAL EDC	01.06.2019
19		BRIJILIN CHANDRESHIA.C T	6/6/1992	THIRUNELVELI EDC	06.06.2019
20		RAGURAMAN.L	9/8/1987	GOBI EDC	11.06.2019
21		KRISHNA JEYANTHI.K	4/2/1995	DINDIGUL EDC	01.06.2019
22		DHARANI PRIYA VAISHNAVI.V	7/19/1992	CDC/TANGEDCO	13.06.2019
23		<b>KARTHICKKUMAR .T</b>	<b>5/22/1991</b>	<b>PALLADAM EDC</b>	<b>06.06.2019</b>
24		SRINIVASAN.A	5/17/1977	CHENNAI NORTH EDC	12.06.2019
25		PRAKASH.K	1/3/1994	CHENNAI NORTH EDC	17.06.2019
26		GANESH.H	6/14/1994	DINDIGUL EDC	01.06.2019
27		LOGATHENMOZHIAL.M	7/31/1989	CDC/TANGEDCO	07.06.2019
28		VIJAYALAKSHMI.N	4/19/1977	COIMBATORE NORTH EDC	13.06.2019
29		PACKIESWARI .T	5/9/1977	TRICHY METRO	06.06.2019
30		KINGSLY BERKY.A	1/25/1992	CHENNAI NORTH EDC	10.06.2019

Sd/-11.07.2019  
Additional Chief Engineer/HRD

**ANNEXURE I-E**

## LIST OF ASSISTANT ENGINEERS/ELEC (TRAINEE) BY DIRECT RECRUITMENT 2019-20

Sl.No.	Ins.Sl.No	Name	Date of Birth	Allotted Circle	Date of Joining
1		DEEPALAKSHMI.K	5/2/1988	COIMBATORE METRO	18.06.2019
2		KAVIYA PRIYAA.A	1/18/1994	CHENNAI NORTH EDC	17.06.2019
3		ANJU .M	5/30/1990	COIMBATORE SOUTH EDC	14.06.2019
4		SARAVANAN.S	3/29/1991	PALLADAM EDC	17.06.2019
5		MOHAMED ARSHAT.M	1/23/1995	GEN/KADAMPARAI	13.06.2019
6		MANIVANNAN.G	6/10/1978	TANJORE EDC	06.06.2019
7		VENKATESH.K	7/18/1992	NAMAKKAL EDC	03.06.2019
8		KARTHIK RAJA.N	3/21/1994	SIVAGANGAI EDC	12.06.2019
9		SUDHARSHANAM.K	6/11/1996	NAMAKKAL EDC	03.06.2019
10		JEEVITHA.B	1/8/1986	TRICHY METRO	03.06.2019
11		SUKUMARAN.S	9/5/1992	PALLADAM EDC	03.06.2019
12		GOKUL.C	6/12/1994	PALLADAM EDC	17.06.2019
13		KARTHIK.S	6/2/1992	PALLADAM EDC	12.06.2019
14		MANGALA VEERA SEKHAR	6/11/1992	GEN/KADAMPARAI	14.06.2019
15		KOMALA.J	11/13/1977	VELLORE EDC	10.06.2019
16		BRAMYA.T	10/4/1994	CUDDALORE EDC	19.06.2019
17		DINESHBABU.P	6/13/1992	THIRUVANAMALAI EDC	30.05.2019
18		MUTHUSARAVANAN.G	7/25/1988	PALLADAM EDC	04.06.2019
19		RAGUNATH.R	7/19/1990	GCC/TRICHY	06.06.2019
20		LYDIA JOYLINE.J	8/4/1996	THIRUNELVELI EDC	31.05.2019
21		KARTHICK.S	3/16/1996	NAMAKKAL EDC	03.06.2019
22		SHADAB USMANI.SU	4/20/1990	GEN/KADAMPARAI	13.06.2019
23		KALAIVANAN.K	6/11/1994	KALLAKURICHY EDC	31.05.2019
24		KANAGARAJ.P	11/8/1989	KALLAKURICHY EDC	14.06.2019
25		SHIVSHANKAR .S	12/23/1990	PALLADAM EDC	10.06.2019
26		SATHISH KUMAR.S	7/14/1986	CHENGALPATTU EDC	06.06.2019
27		SARANYA.S	1/11/1992	KRISHNAGIRI EDC	31.05.2019
28		SIVARANJINI.M	5/4/1995	TUTICORIN EDC	03.06.2019
29		AROKIADOSS.T	6/26/1988	CHENGALPATTU EDC	07.06.2019
30		KAVIKA.R	6/19/1995	CDC/TANTRANSCO	03.06.2019

Sd/-11.07.2019

Additional Chief Engineer/HRD

## ANNEXURE II-A

Transmission and Distribution Training and Development Institute and Research Centre

Induction Training programme for newly recruited Assistant Engineers-2019 (Electrical )

Syllabus :

### DISTRIBUTION

- ❖ Roles and Responsibilities of Section Officer
  - Effective planning and allocation of Operation and Maintenance work to subordinates.
  - Processing of application , inspection and effecting of new service connections
  - Maintenance of Registers
  - Responding to consumers complaints
  - Administrative matters - Supervision and management of conduct and performance or execution of the works entrusted to the subordinates
- ❖ TNERC Supply code
  - Categories of supply
  - Charges recoverable by the licensee
  - Miscellaneous charges
  - Installation and Meters
  - Billing and Payment
  - Disconnection and Reconnection of supply
  - Tampering / Damage to meters and Equipments
- ❖ TNERC Distribution code
  - Distribution system planning
  - Connectivity conditions
  - Operation guidance for Distribution system
- ❖ Distribution Standard of Performance
  - Quality of service
  - Duties to extend power supply on request
  - Temporary Supply
  - Shifting of service connection
  - Name Transfer
  - Tariff change
  - Complaints in Billing
  - Replacement of meters
  - Interruption and Restoration of supply
  - Failure of equipments
  - Grievance handling
  
- ❖ HT & LT Distribution network - Constructional Activities

- Distribution line Equipments - Overhead lines, supports (wood poles, concrete poles, steel poles, Rolled steel (RS ) joists, lattice type supports)
- Line accessories
- Earthing arrangement
- Distribution Transformer - Site selection and Placements
- Selection criteria (voltage rating , size/capacity / KVA Ratings)
- Standard Construction practices
- CEA standard in distribution
- ❖ Maintenance aspects of Distribution Transformer and their allied lines
  - Types of maintenance - Emergency maintenance ,planned maintenance , corrective maintenance , preventive maintenance, shut down maintenance.
  - Inspection of HT & LT Lines - Routine inspection, Pre monsoon inspection , special inspection ( during breakdown)
  - Schedules of periodical inspection of Distribution Transformer structure , HT & LT Lines
  - Preventive maintenance schedule for Distribution Transformer structure , HT & LT Lines
  - Causes for DT failure and case studies
- ❖ Preparation of HT & LT Estimates
  - Application scrutinizing
  - HT & LT Layout
  - HT & LT Pole schedule
  - Types of estimates - Extension estimate , Improvement estimate, Deposit Contribution work , Replacement of theft of materials , Replacement estimate for materials damaged due to accident , permanent dismantling estimate , temporary supply estimate.
- ❖ HT & LT Metering
  - Static /TOD – Numerical meters( Electronic meters )
  - Prepaid meter, Automatic meter reading (AMR ) & Remote meter reading (RMR )
  - HT and LT metering arrangement
  - Inspection procedure for HT / LT services
- ❖ Computerized HT and LT Billing
  - Contribution of Project Best
  - Assessment using hand held devices and LT Billing software
  - Collection with LT Billing software
  - HT and LT Application Tracking for New Service connection.
- ❖ Theft of Energy and Assessment procedures
  - Theft and Pilferage of Electricity - case studies
  - Prevention to energy theft - A practical solution
  - Formula for assessment , compounding of offences
- ❖ RAPDRP, IPDS. DDUGJY and UDAY Scheme Woks in Distribution
  - Concepts and parts of RAPDRP , IPDS. DDUGJY and UDAY Schemes.
  - Implementation methodology

- Distribution losses
- Estimation of losses
- Loss reduction techniques
- ❖ Distribution Automation and SCADA
  - Need for automation
  - DA Components
  - SCADA
  - Visit to SCADA centre , RTU , RMU and sectionalizes
  
- ❖ Work Order Application and closure procedures
  - Types , Group codes
  - How to apply
  - Initial accounting
  - Completion Report
- ❖ Stores Transaction
  - Drawal of materials from stores
  - Devolution of materials to stores
  - Survey report and materials adjustments
  - Accounting of receipt of materials

## **TRANSMISSION**

- ❖ EHT Transmission Network -  
Tower erection, Stringing of EHT line and maintenance Practices
  - Tower erection - Assembly , Methods of erection , Stringing of conductors, assembly and installation of insulators and hardwares
  - Typical procedures for stringing operations
  - Final checking
  - Testing and commissioning.
  
- ❖ Substation - Schematic Arrangement , SLD and SS Erection Practices
  - Substation - purpose ,types , substation layout , materials used in substation , Selection of main equipments
  - Standard Erection practices of substation and their accessories
  - Transformer Erection practices
  - Designing and installation of earth mat.
  
- ❖ Testing & Commissioning of SS Equipments
  - Tests in Power Transformer - Insulation Resistance , Polarisation index , ratio test , OC Test , SC Test , confirmation of vector group , Tests in Transformer oil

- Circuit Breaker - IR value, Contact Resistance , Measurement of Operation Time.
  - CT - IR value, Polarity check , Ratio Test , Excitation Characteristic test
  - Tests in Battery , Battery Charger.
- 
- ❖ Operating Instruction and Issue of LC Procedure
    - LC on 110 KV Feeders and Normalization procedures
    - LC on Power Transformer
    - LC on LV Breakers / Lines and Normalization procedures
    -
  - ❖ Power and Auto Transformers - operational and Maintenance Procedures
    - Main Parts of Power / Auto Transformer - Operational aspects
    - Preventive and Condition monitoring of Power / Auto Transformer
  - ❖ Circuit Breakers - operating Mechanism and Maintenance Procedures
    - Types of Breakers - Arc Quenching media – Mechanism etc
    - Operating Mechanism - Working Principle
    - Constructional features
    - Operational principles
    - Details of Maintenance procedures
    - Trouble shooting
  - ❖ Battery & Charger
    - Principles of operation
    - Charging of Batteries
    - Inspection and Maintenance of Batteries
  - ❖ Earthing Arrangement in SS
    - Objective of Earthing
    - Earth mat design
    - Methods to improve earth Resistivity
    - Earth Resistance Measurement
  - ❖ Safety Aspects in Handling SS Equipments (Electrical & Fire Safety )
    - Indian Electricity Rules
    - The Safety System and Procedures
    - Safety codes and Practices
    - Accident Prevention Method

- Fire safety - Fire fighting Norms for Substation , Fire Fighting Techniques
  - Reporting of accident.
- ❖ Relaying Techniques and Protection in SS
- Protection Requirements
  - Types of relays
  - Principle of operation
  - Protection schemes.
- ❖ Power system communication
- Basics of Data communication
  - Power line carrier communication - principle of operation , line trap , coupling capacitor, line matching unit ,
  - VST Communication
  - Microwave communication
  - Fiber optic communication.

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## **ANNEXURE II-B**

### Thermal Training Institute and Research Centre, North Chennai Thermal Power Station Induction Training programme for newly recruited Assistant Engineers-2019 (Electrical )

- Over View of Thermal Power Plant and Rankine Cycle
- Steam Generator (600 MW)
- Steam Generator (600 MW) Auxiliaries
- Oil and Coal Handling System
- Steam Turbine (600 MW)
- Steam Turbine (600 MW) Auxiliaries
- Generator (600 MW)
- Generator (600 MW) Auxiliaries
- Over view of Milling System and Ash Handling System
- Gas Insulated Substation (GIS) and Switch Yard Protections
- Site Visit (NCTPS-II) (Boiler)
- Site Visit (NCTPS-II) (Turbine)
- Power Plant Chemistry
- Site Visit (NCTPS-II) (Generator)
- Site Visit (NCTPS-II) (Switch Yard)
- Transformer Specifications
- Transformer Testings
- Overview of Control & Instrumentation
- Overview of Meter Relay Test
- Over View of Combined Cycle Power Plant
- Role of Communication in Grid Management
- Available Based Tariff (ABT) and Open Access
- Industrial Safety

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## **ANNEXURE II-C**

Hydro Training Institute & Research Centre / Kuthiraikalmedu

### Induction Training programme for newly recruited Assistant Engineers-2019 (Electrical )

- Hydro Power Sector & Non-conventional energy sources.
- Familiarization of Hydro Power Station -Investigation -Types of scheme - Principle of Hydro power potential - discharge.
- Water storage system -Reservoirs- Dams - Fore bay - water conducting system- Intake structure - tunnels - surge shaft.
- Generator types - working principle - O&M and its auxiliaries.
- Starting & Shutdown of Generators, LC and Work Permission in Hydro Power Stations.
- Turbine -Classification - Principle, construction details & Functions.
- Gates and valves - Types, Operation and maintenance.
- Compressors, Pumps, Bearing, Cooling water system, Pressure oil system.
- Governors-operation, types, Free Governor mode operation.
- Generator protection & Feeder protection system, control panels & relay.
- Generator Transformer, Excitation system and DG set & Station Supply.
- Maintenance in Hydro Power House-Capital and Annual Overhauling.
- Generator –Dual mode operation- Condenser operation & Pumped storage scheme.
- Electrical hazards in Hydro Stations, Accident prevention techniques, Case Studies, Factory Act, Reporting of accidents and First Aid, Disaster Management.

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## **ANNEXURE II-D**

Staff Training College / Chennai

### Induction Training programme for newly recruited Assistant Engineers-2019 (Electrical )

- Organisational Structure - overall view
- An Introduction to EA 2003- overview
- Present Power Scenario
- Present Financial Scenario
- Administrative and office Procedures
- Disciplinary Proceedings
- Introduction to Important Acts
- (Labour & ID)
- IPR & Teambuilding
- Legal Aspects and court cases
- RTI Act-2005
- Audit Related Matters
- Customer Relationship Management
- IT Implementation in TNEB
- Tender Regulation
- Communication Skills
- Visit to LD Centre, Call Centre and R&D Lab Library
- Tariff applications and its implications
- Temp. Advance & Imprest
- Presentation Skills
- Stress Management
- Leave & TA Regulations,
- Loans & Advances
- Fostering Organisational Belongingness

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## **ANNEXURE II-E**

Hydro Training Institute & Research Centre / Kuthiraikalmedu

Induction Training programme for newly recruited Assistant Engineers-2019 (Civil )

- Hydro Station familiarization, Types of hydro schemes - Cascading hill stream, dam toes, irrigation and non irrigation, pumped storage and project enabling works.
- Water conducting system - contour canals, Flumes and various type of intake and structure, semicircular and tower types, including Draft tube, tail race
- Basics of Turbines, Gates & Valves
- Water storage system - catchment area - reservoir - dams -Types, design aspects.  
Power house maintenance
- Tower Construction , erection stringing and its maintenance aspects - issues
- Tunnels - Types based on functions shapes and construction feature. Shafts, penstocks construction operation & maintenance aspects
- Contract, Documentation, tender regulation issues, etc, Estimation, Costing & billing issues of civil works,
- Basics of Electricity & Electrical Equipments in Hydro
- Overview of distribution & transmission, Introduction about substation
- Overview of thermal power station, Environmental issues in thermal station
- Distribution network, electrical poles and precasting - RCC poles
- MS Office packages, MS Excel, MS word and MS power point
- Role of transmission line in power sector - Surveying & issues in land acquisition, Right of way issues -Tower types and Substation
- Foundation for power houses, towers and its maintenance, Repair & Rehabilitation of Civil Structures
- Hydro power Plant visits
- Thermal power Plant visit
- PCC, RCC Pole casting yard visit

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## **ANNEXURE II-F**

Staff Training College / Chennai

### Induction Training programme for newly recruited Assistant Engineers-2019 (Civil )

- Organisational Structure - overall view
- An Introduction to EA 2003- overview
- Present Power Scenario
- Present Financial Scenario
- Administrative and office Procedures
- Disciplinary Proceedings
- Introduction to Important Acts
- (Labour & ID)
- IPR & Teambuilding
- Legal Aspects and court cases
- RTI Act-2005
- Audit Related Matters
- Temp. Advance & Imprest
- IT Implementation in TNEB
- Tender Regulation
- Communication Skills
- Visit to LD Centre, Call Centre and R&D Lab Library
- Project Management
- Presentation Skills
- Stress Management
- Leave & TA Regulations,
- Loans & Advances
- Fostering Organisational Belongingness

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**Annexure - III**

Schedule for Induction training Newly recruited AEs 2019

			22.07.2019	29.07.2019	05.08.2019	16.08.2019	26.08.2019				11.09.2019	19.09.2019	27.09.2019	9.10.2019	17.10.2019
			27.07.2019	03.08.2019	10.08.2019	22.08.2019	31.08.2019				17.09.2019	25.09.2019	04.10.2019	15.10.2019	23.10.2019
1	E	<b>I -A</b>	MDU	MDU	HTI	STC	TTI	6	E	<b>I-F</b>	MDU	MDU	HTI	STC	TTI
2	E	<b>I-B</b>	HTI	MDU	MDU	TTI	STC	7	E	<b>I-G</b>	HTI	MDU	MDU	TTI	STC
3	E	<b>I-C</b>	TTI	STC	MDU	MDU	HTI	8	E	<b>I-H</b>	TTI	STC	MDU	MDU	HTI
4	E	<b>I-D</b>	STC	HTI	TTI	MDU	MDU	9	E	<b>I-I</b>	STC	HTI	TTI	MDU	MDU
5	E	<b>I-E</b>	MDU	TTI	STC	HTI	MDU	10	E	<b>I-J</b>	MDU	TTI	STC	HTI	MDU
	Civil				STC	HTI	HTI								

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**ANNEXURE IV-A**

Transmission and Distribution Training and Development Institute and Research Centre

**ESTIMATE FOR 12 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (ELECTRICAL)- 2019**

Sl. No.	Description	Amount Rs.
1	Honorarium/Memento @ Rs.1000/-per Hour for external faculty @Rs.700/-per Hour for Internal faculty) $\{(3*1000+3*700)*12\}$	61,200
2	Training Kit (Course Material, DVD, Folder, Pen, Certificate etc.) @Rs.450/-for 35 (30 Trainees + 5 Additional participant if any)	15,750
3	Lunch @ Rs.160/- for 38(30Trainees+8 additional) for 12 Working Days (160x38x12)	72,960
4	Tea & Snacks charges @ Rs.70/- 38(30Trainees+8 additional) for 12 Working Days (70x38x12)	31,920
5	Mineral water charges @ Rs.150/- per day for 12 days (150x12)	1,800
6	Rental Charges for LCD Projector & Laptop @ Rs.2500/- per day for 12 days	30,000
7	Rental charges for Air cooler @ Rs. 700/- for 12 days	8,400
8	Conveyance Charges for visit /onsite works for 4 visits (Rs.5000/- per visit for 3 visits and Rs.6000/- for 1 visit)	21000
9	Prize / Memento ( 3 Nos)	1000
10	Miscellaneous Charges (Photos , technical handout etc.,)	2500
	Total for Estimate	Rs 2,46,530
	GST @ 18 %	Rs 44,375.4
	Grand Total	Rs 2,90,905
	<b>TOTAL ESTIMATE AMOUNT FOR 10 BATCHES</b>	<b>Rs 29,09,050</b>

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**ANNEXURE IV-B**

Thermal Training Institute and Research Centre, North Chennai Thermal Power Station - I			
ESTIMATE FOR 6 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (ELECTRICAL)- 2019			
Sl. No.	Description	Amount in Rs.	
1	Honorarium for Guest Lecture @ Rs.1,000/-per hour for External Faculty and @ Rs.700/- per hour for Internal Faculty for Six Days. ((Rs.1,000/- x 6 Hours x 6 days))	36,000	
2	Training Kit (Course Material, Scribbling Pad, Pen, Folder, Pen Drive (USB Flash Drive) / CD with Pouch, Certificate etc) for 30 Nos. Participants + 1 Reference (Rs.350/- x 31 Nos.)	10,850	
3	Working Lunch @ Rs.175 /- for (30+5) 30 Trainees & 5 (Faculties & Coordinators) for 6 working days including Delivery and Catering (Rs.175/- x (30+5) Nos. x 6 days)	36,750	
4	Tea & Snacks charges @ Rs.75/- per day for (30+5) 30 trainees & 5 (Faculty & Coordinators) for 6 working days including Delivery and Catering (Rs.75/- x (30+5) Nos. x 6 days)	15,750	
5	Mineral Water charges @ Rs.160/- per day including Delivery (Rs.40/- for 25 litres Can x 4 Nos) per day for (30 trainees + 5 Faculty ) * 6 days) (Rs.40/- x 4 x 6 days)	960	
6	Conveyance Charges for picking up and drop of trainees & faculties, transport of Stationery items, Course material etc. and Plant Visit @ Rs.2,700/- per Vehicle per day (Rs.2,700/- x 2 Vehicle x 6 days)	32,400	
7	Provision of Laptop, LCD Projector, Screen @ Rs.1,500 Per day( 6 days )	9,000	
8	Prize Distribution	500	
9	Miscellaneous Charges	1,010.34	
	Total for Estimate	Rs	143,220.34
	GST @ 18 %	Rs	25,779.66
	Grand Total	Rs	1,69,000
	TOTAL ESTIMATE AMOUNT FOR 10 BATCHES	Rs	16,90,000

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## ANNEXURE IV-C

**Hydro Training Institute & Research Centre / Kuthiraikalmedu**

## ESTIMATE FOR 6 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (ELECTRICAL)- 2019

1	Honorarium/Memento (@ Rs.1000/-per Hour for external faculty, @Rs.700/-per Hour for Internal Faculty) for 36 hours [(1000 x 6x4) + (700x6x2)}		32,400
2	Training Kit (Course Material,CD/DVD, Folder, Pen, Scribling pad, etc..) @Rs.400/- for 32 (30 Trainees + 2*) (32x400)		12,800
3	Lunch @ Rs.130/- for 35 (30 Trainees+5**) for 6 Working Days (130x35x6)		27,300
4	Tea & Snacks charges @ Rs.75/- for 35 (30 Trainees+5**) for 6 Working Days (75x35x6)		15,750
5	Mineral water charges @ Rs.120/- per day for 6 days (120x6)		720
6	Conveyance Charges for visit /onsite works @Rs.16,000/-per day for 2 days		32,000
7	Hiring of Kitchen Utensil (Vessels, Dining tables ,Chairs etc..)		2,500
8	Prize for the 3 Toppers		1,000
9	Miscellaneous Charges		1,801
	Total for Estimate	Rs	1,26,271
	GST @ 18 %	Rs	22,729
	Grand Total	Rs	1,49,000
	TOTAL ESTIMATE AMOUNT FOR 10 BATCHES	Rs	14,90,000
	* Additional Trainees if any		
	** Course co-ordinators, Faculties/Additional Trainees		

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## ANNEXURE IV-D

**Staff Training College / Chennai**

## ESTIMATE FOR 6 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (ELECTRICAL)- 2019

Sl. No.	Description	Amount Rs.
1	Honorarium (@ Rs.1000/- Hour for external faculty, @ Rs.700/- Hour for internal faculty) (18:18)	30,600
2	Training Kit (Course Material, CD, Folder, Pen, Certificate, etc.) @ Rs.450/- for (30 Trainees+5*additional trainees ) (450x35)	15,750
3	Working Lunch @ Rs.175 for 38 (30Trainees+5*+3**) for 6working days (175x38x6)	39,900
4	Tea and Snacks @ Rs.75 for 38 (30Trainees+5*+3**) for 6working days (75x38x6)	17,100
5	Rental charges LCD Projectors & Screen @ Rs 2000/- perday for 6 days	12,000
6	Three prizes (I,II and III )	1,000
7	Mineral water charges @ Rs.160/- per day for 6 days (160x6)	960
8	Miscellaneous Charges	1,631
	Total for Estimate	Rs 118,941
	GST @ 18 %	Rs 21,409
	Grand Total	Rs 140,350
	TOTAL ESTIMATE AMOUNT FOR 10 BATCHES	Rs 14,03,500
	* Additional Trainees	
	** Faculties	

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## ANNEXURE IV-E

Hydro Training Institute &amp; Research Centre / Kuthiraikalmedu

## ESTIMATE FOR 12 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (CIVIL) - 2019

1	Honorarium/Memento (@ Rs.1000/-per Hour for external faculty, @Rs.700/-per Hour for Internal Faculty) for 72 hours [(1000 x 6x8) + (700x6x4)}	64,800
2	Training Kit (Course Material,CD/DVD, Folder, Pen, Pad, etc.,) @Rs.400/- for (25 Trainees + 2*)	10,800
3	Lunch @ Rs.130/- for 30 (25 Trainees+5**) for 12 Working Days (130x30x12)	46,800
4	Tea & Snacks charges @ Rs.75/- for 30 (25 Trainees+5**) for 12 Working Days (75x30x12)	27,000
5	Mineral water charges @ Rs.120/- per day for 12 days (120x12)	1,440
6	Conveyance Charges for visit /onsite works @Rs.16,000/-per day for 4 days	64,000
7	Hiring of Kitchen Utensil (Vessels,Dining tables ,Chairs etc.,)	5,000
8	Prize for the 3 Toppers	1,000
9	Miscellaneous Charges	2,041
	Total for Estimate	Rs 2,22,881
	GST @ 18 %	Rs 40,119
	Grand Total	Rs 2,63,000
	* Additional Trainees if any	
	** Course co-ordinators, Faculties / Additional Trainees	
	Provision has been made for 2 Numbers maxi cab van @ Rs.8,000/- per day as in the ATP 2019-20 approval. However the charges should be limited to maximum extent possible.	

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ANNEXURE IV-F		
Staff Training College / Chennai		
ESTIMATE FOR 6 DAYS INDUCTION TRAINING PROGRAMME FOR NEWLY JOINED ASSISTANT ENGINEERS (CIVIL)- 2019		
S.No.	Details	Amount
1	Honorarium (@ Rs.1000/- Hour for external faculty, @ Rs.700/- Hour for internal faculty) (18:18)	30,600
2	Training Kit (Course Material, CD, Folder, Pen, Certificate, etc.) @ Rs.450/- for (25 Trainees ) (450x25)	11,250
3	Working Lunch @ Rs.175 for 28 (25Trainees+3**) for 6working days (175x28x6)	29,400
4	Tea and Snacks @ Rs.75 for 28 (25Trainees+3**) for 6working days (75x28x6)	12,600
5	Hall Rent, Rental charges LCD Projectors & Screen @ Rs 10000/- per day for 6 days	60,000.00
6	Three prizes (I,II and III )	1,000
7	Mineral water charges @ Rs.160/- per day for 6 days (160x6)	960
8	Miscellaneous Charges	1,648
	Total for Estimate	Rs 1,47,458
	GST @ 18 %	Rs 26,542
	Grand Total	Rs 1,74,000
	** Faculties	
	Provision of Hall rent should be utilized only if training hall not available in Head quarters office.	

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Annexure -V

Sl. No.	Description	Approved ATP Rate	for Institutes	Reasonableness
1	Honorarium for external faculty	Rs.1000/- per Hr	All Institutes	Already approved rate as per ATP 19-20. Hence Reasonable.
	Honorarium for internal faculty	Rs.700/- per Hr	All Institutes	
2	Lunch	Rs.175/- per trainee	STC and TTI&RC	
		Rs.160/- per trainee	T&D and T&DI&RC	
		Rs.130/- per trainee	HTI&RC	
3	Tea / Snacks	Rs.75/- per trainee per day.	STC, TTI&RC and HTI&RC	
		Rs.70/- per trainee per day.	T&D,T&DI&RC	
4	Mineral water	Rs.160/- per day	STC and TTI&RC	
		Rs.120/- per day	HTI&RC	
		Rs.150/- per day	T&D,T&DI&RC	

Since the Induction training is going to be conducted for 10 batches in addition to the regular Annual training Programmes, provision has been given for the following items:

Sl. No.	Description	Rate adopted in the estimate	Approved Rates in ATP	Rates approved in 2017-18 Induction Training	Name of the institute	Reasonableness
1	Renting LCD Projector & Laptop	Rs.2500/- per day	No Provision in ATP	Rs.1500/- per day	T&D,T&DI &RC	Rate based on quotation received from nearest vendor by the respective Institute. Hence, Marginal increase is reasonable.
		Rs.1500/- per day		Rs.1500/- per day	TTI&RC	Same as already approved

						during 2017 Induction training. Hence Reasonable.
	Renting of Projector and Screen	Rs.2000/- per day (for 10 batches of training to be conducted for Electrical batches)	No Provision in ATP	No Provision for LCD Projector, Screen & Laptop given.	STC	Rate based on quotation received from nearest vendor by the respective Institute. Hence, reasonable.
2	Hiring kitchen vessels, utensils, since mess is available for cooking	Rs.2500/- (For electrical Batch with six days) Rs.5000/- (For Civil Batch -12 Days training)	No Provision in ATP	Rs.2160/- per Week Nil	HTI&RC	Rate based on quotation received from nearest vendor by the respective Institute. Hence, Marginal increase is reasonable.
3	Hall rent, LCD projector rental charges, Screen, Laptop	Rs.10,000/- per day.	No Provision in ATP	Rs.10,000/- per day.	STC	Same as already approved during 2017 Induction training. Hence Reasonable.

4	Air Cooler for rent .	Rs.700/- per day	No Provision in ATP	No Provision	T&D,T&DI &RC	Rate based on quotation received from nearest vendor by the respective Institute. Hence, reasonable.
5	Course Material/ Training Kit	Rs.450/- per Batch Rs.400/- per Batch Rs.350/- per Batch	Rs.275/300/325 per trainee for 1/2/3 days training.	--- --- ---	T&D,T&DI &RC and STC HTI&RC TTI&RC	For 3 days Rs.325 per trainee is approved in ATP 2019-20. Hence, for 6 days, the rates

						given are reasonable.
6	Conveyance charges for visit /onsite works	Rs.5000/- per day (For 3 Visits)	Hire charges per day @ Rs.3500/- + Diesel charges 8KM/Lit for Plain area and 7KM/Lit for Hilly area.	---	T&D,T&DI &RC	Already approved rate as per ATP 19-20. Hence Reasonable.
		Rs.6000/- per day (For 1 Visit)		---		
		Rs. 8000/-per vehicle per day	Hire charges per day @ Rs.3500/- + Diesel charges 8KM/Lit for Plain area and 7KM/Lit for Hilly area.	---	HTI&RC	
		Rs.2700/-per vehicle per day	Rs.2700/- per day (Prevailing hours package).	---	TTI&RC	
Normally 1 no. vehicle is engaged for 20 no. of participants during regular training programme. During Induction training programme, no. of participants are 30, hence additional vehicle is required for HTI &TTI.						

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**ANNEXURE - VI**AUTHORITY TO SANCTION TEMPORARY ADVANCE  
TRAINING INSTITUTE

SI No	Training Institute/Centre	Officer In charge	Authority to sanction temporary advance
1	Transmission & Distribution Training and Development Institute & Research Centre/ Madurai	DGM/Tr.& Dist. Trg.and Dev. Institute/Madurai	SE/Madurai EDC
2	Thermal Training Institute & Research Centre / North Chennai	DGM/TTI/North Chennai	SE/P&A/NCTPS
3	Hydro Training Institute & Research Centre /Kuthiraikalmedu	DGM/ HTI / KK MEDU	SE/Gen/Erode
4	Staff Training College/ Chennai	DGM/ STC/ Chennai	GM / HRD /Chennai

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