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	Modules	Duration
A	Transportation Module	Non-Requisite
B	Technical Module	30 days
	Total	**30 days**

(B) Conversion Training Course LP – Diesel to Electric Traction

Course Code -PCEM

Module no.	Training Content	Duration in days
PCEM-1	Loco Module	9
	Field / Footplate /Simulator/ Troubleshooting	3
PCEM-2	Loco Operation Module	5
	Field / Footplate /Simulator/ Troubleshooting	3
PCEM-3	TrD Module	½
PCEM-4	Loco Pneumatic Module	2
	Field / Footplate /Simulator/ Troubleshooting	3
PCEM-5	Simulator Training& Manual Control of GR & EEC in tripping car	4
	Final Exam	½
	Total days	**30**

- **Note -** After 30-day training at ETC/DTC, **6 day** train handling to the trainee on train / simulator, on the lines of handling given to LPG on promotion (Ref : Board's letter no 2004/M(L)/466/7101 dt 31.08.2009).
- If CLI is not satisfied with the LP's performance / confidence after the above handling, it may be extended further with the approval of Sr. DEE (OP) / Sr. DME (P).

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PCEM-1

DESCRIPTION
Loco Module

DURATION
9 days

CONTENTS

Sno.	Subject	Duration in days
1.	Precaution/rules to be followed in electrified zone/electric locomotive • Safety precautions related to 25kV OHE • Safety precautions during corridor / machine room inspection on moving loco	9 days
2.	Principle of electric locomotives - three phase & conventional electric locomotives	
3.	Brief on basic electric circuitry of three phase & conventional locomotives (including WAG12).	
4.	General layout of electric locomotives – three phase & conventional loco – brief overview of loco sections viz. cab, corridor, machine room, under frame, roof equipment & pantograph, buffer, coupling, cattle guard, Headlight, Flasher light, Marker light, gauges & meters in cab, RS valve (emergency brake valve), other apparatus in cab, etc.	
5.	Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations	
6.	Checking of stabled locomotive before energizing • Standing on line & under OHE, oil & lubrication points, availability of fire extinguishers and wooden wedges, etc.	
7.	Familiarization with Loco log book and description of tools & equipment provided to loco crew	
8.	Location of fixed & portable fire extinguishers and procedure to use fixed fire extinguishers	

Field Training / Footplate **3 days**

- Field Training / Footplate / troubleshooting training under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of loco equipment location, checking procedure of loco before energizing the loco, etc.

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DESCRIPTION **DURATION**

Loco Operation Module **5 days**

CONTENTS

Sno.	Subject	Duration in days
1.	Energizing, De-energizing & stabling of locomotive & cab changing procedure • Loco energizing sequence/procedure for three phase & conventional locomotives. • Cab changing procedure/sequence • Loco shunting down procedure/sequence and stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc).	5 days
2.	EEC & GR manual operation in Conventional loco.	
3.	Wedging of different type of relays & contactors in conventional locomotive	
4.	Flasher light – its checking procedure & usage	
5.	VCD act on line	
6.	Headlight not working	
7.	Horn not working	
8.	Speedometer not working	
9.	BPEMS switch & usage	
10.	Operation of PTDC in three phase locomotive	
11.	Throttle not responding	
12.	Harmonic filter isolation	
13.	Working from rear cab	
14.	Fire in locomotive	
15.	Function of various safety equipment VCD, Fogsafe/FogPass device, KAVACH, RDAS, etc.	
16.	RTIS equipment, usage and precautions.	
17.	Types of loco faults, reading method DDS, status code and reading of troubleshooting directories.	
18.	Reading of Trouble shooting directory of various three phase & conventional locomotives.	
19.	Precautions to be followed in case of any equipment of loco is isolated (as per TSD).	
20.	Procedure of grounding / un-grounding of loco	
21.	Action to be taken in case of panto broken/entangled. ORD feature.	
22.	Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.)	
23.	Procedure of attaching dead loco.	

Field Training / Footplate **3 days**

- Field Training / Footplate / troubleshooting under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of sequences of loco energizing & deenergizing, ground/un-grounding, etc.

PCEM -3

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DESCRIPTION
TrD Module

DURATION
½ day

CONTENTS

Sno.	Subject	Duration in days
1.	Brief Knowledge of TrD • Brief overview of OHE system • Familiarization with OHE equipment for identification (including cantilever assembly)	½ day
2.	Procedure of passing neutral section • Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board). • Precaution to be taken before & after neutral section.	
3.	Provision of Sigma Board & usage.	
4.	Communication with TPC/TLC in case of panto broken or OHE hanging.	
5.	Action to be taken in case of panto broken/entangled.	
6.	Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc.	
7.	Duties of during OHE Break Down.	

PCEM -4

DESCRIPTION
Loco Pneumatic Module

DURATION
2days

CONTENTS

Sno.	Subject	Duration in days
1.	Overview on braking system of three phase locomotive	2 days
2.	Overview on braking system of conventional locomotive	
3.	Action to be taken in case of MR pressure not build up	
4.	Action to be taken in case of BP pressure not build up	
5.	Action to be taken in case of FP pressure not build up	
6.	Action to be taken in case of BP pressure not maintaining	
7.	Miscellaneous failures of air brake of locomotive	
8.	Pneumatically isolation of bogie	
9.	Releasing of parking/hand brake in case of brake binding in locomotive	
10.	Overview on operation of PTDC in three phase locomotive	
11.	Location of air dryer and isolating procedure	
12.	Actions to be taken in case of BP/ FP angle cock broken due to CRO	
13.	Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc.	

Field Training / Footplate 2024/E(Trg)/41/13 **3 days**

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- Field Training / Footplate / troubleshooting under Training Instructor/Chief Loco Inspector. Practical demonstration of subjects related to brake system of electric locomotives and hands on training for learning of procedures, sequences, etc.

PCEM -5

DESCRIPTION	DURATION
Simulator Training & Tripping car	**4 days**

CONTENTS

Simulator Training & practical training of trouble shooting through TSD, manual operation of GR & EEC etc in tripping car.

DESCRIPTION	DURATION
Review & Exam	**½ day**

CONTENTS

Review & Exam

Instruction for Training centers & Instructors(Technical Module)

- Classroom training to have audio-visual aids with digital content.
- Deep knowledge of circuits (electrical or pneumatic), etc is not required.
- Training should primarily emphasize on driving skills, requirements of rules / regulations / discipline in day to day operation.
- Preferably, 2 hours of In-motion simulator training may be provided to each trainee. If adequate hours on In-motion simulator is not feasible, Desktop-type simulator may be used.
- While foot-plating, the trainee should act like an observer only. He/she shall not interfere with activities of crew. He/she shall **NOT** be held responsible for lacunae in any routine/defined duties of LP in case of any untoward incident, etc.
- While preparing question papers for examinations, the focus should preferably be on the duties of the ALP and the activities they perform during train operations, as well as the procedures encountered in day-to-day working, rather than on the technical data of the locomotive etc.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP/ALP on the subject could have effectively prevented such cases.
- Furthermore, any outstanding topics relevant to the assigned duties should be integrated into the training curriculum as necessary.

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