ALP to LPS/LPG Promotional Training Course – Electric Traction

	Modules	Duration
A	Transportation Module	24 days
B	Technical Module	42 days
	Total	**66 days**

DESCRIPTION 2024/E(Trg)/41/13 **DURATION**

(A)Transportation, First Aid & Fire Fighting **24 days**

I/3109873/2024

Sno.	Subject	Duration in days
1.	Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips.	24 days
2.	Important definitions such as Ad. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules	
3.	Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc	
4.	Personal equipment of LOCO PILOTS	
5.	Stations • Kinds and classification of stations minimum essential signals etc. for each station. • Block and non-Block stations. • Block overlap. • Yard Layout, etc.	
6.	System of working – • Absolute Block System • Automatic Block System, • Train following System, etc	
7.	Signals – • Necessity and Evaluation of signals, • classification and kinds of signals, • Approach and Departure signals permissive signals, subsidiary signals, etc.	
8.	DEFECTIVE SIGNALS • Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals. • Action and rules for passing defective signals of different types. • Practical tour for sight in Yard.	
9.	ENGINEERING SIGNALS • Engineering Signals. Their placement. • Permanent and Temporary Engineering Cautions. • Brief of Chat Section. • Speeds.	
10.	Isolation	
11.	Different authorities/forms	
12.	WHISTLE CODES What is a Whistle Code? When and how is to be used? Precautions before starting a Train from a station (originating) or Yard right signals.	
13.	Working of trains • When Headlight is failed.	

	• When a train is received on Blocked line or to be started from a Non-Signal/Non running line without brake van or without guard • Departure from non-signaled line • When train has a hot axle. • Having ODC • Train formed from a non-TXR point, etc. • Caution order • Authorized persons in Cab Stopping on gradient	
14.	Abnormal working – • Rules for working of trains – single line working on Double line in absolute and automatic Block Sections. • Total failure Communication. • Rules for sending relief engine from right line and wrong line. • Precautions to be observed during abnormal working in different cases.	
15.	Shunting – • Kinds of shunting. • Precautions for safe and smooth shunting. • Rules for shunting in Yard, coaching Yard and "B" class stations. • Model Room training.	
16.	• Train operation in fog	
17.	Protection Rules	
18.	Exchange of Signal & its significance	
19.	Accident – • Duties of LOCO PILOT in case of accident. • Mid Section derailments. Engine failures etc. • Over shooting • Protection in block section in case of accidents. Use of detonators	
20.	• Duties in case of fire in train/loco.	
21	Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc.	
22.	Discussion and queries on safety and accidents.	
23.	Accident free service award.	

(B)ALP to LPS/LPG Promotional Training Course – Electric Traction

Course code– GPM

Module no.	Training Content	Duration in days
GPM-1	Loco module	4

	Model Room / Field visit / Simulator training	2
GPM-2	Driving module	4
	Footplate / Field / Simulator training / troubleshooting	2
GPM-3	Safety module	2
GPM-4	Loco Operation module	4
	Footplate / Field / Simulator training / troubleshooting	2
GPM-5	Train Operation module	3
	Footplate / Field / Simulator training	2
GPM-6	Loco Pneumatic module	3
GPM-7	C&W and Air Brake module, introduction & basic operation of EMU/MEMU, Vande Bharat type train set, Push-Pull etc.	4
GPM-8	TrD module	1
GPM-9	'KAVACH' Module	2
GPM-10	Simulator Training	6
	Final Exam	1
	Total days	**42**

Note - After 42-day training at ETC, trainees shall undergo 'Train Handling on Line', in respective divisions as outlined in the Board's letter no. 2004/M(L)/466/7101 dated 31.08.2009.

- If CLI is not satisfied with the trainee LP's performance / confidence after the above handling, it may be extended further with the approval of Sr. DEE (OP)/Sr. DME (P).
- In the case of ALP has to work as LPS only, the instructions for train handling (Locomotive/EMU/MEMU/Vande Bharat, etc.) as mentioned in Railway Board's letter no. E(NG)I/2023/PM7/7 (E-3437106) dated 30.05.2024, shall be applicable.

09873/2024

DESCRIPTION
Loco Module

DURATION
4 days

CONTENT

Sno.	Subject	Duration in days
1.	Comprehensive presentation on the independent role of Loco Pilot in train operation.	4days
2.	General description of all variants of electric locomotive – Three phase & conventional locomotives (including microprocessor & SIV based locos, WAG12 etc.) - Hauling capacities, Tractive effort, weight, axle load, hauling capacity, etc.	
3.	Brief description on safety items - undergear safety fittings & intactness (cattle guard, rail guard, sand box & sander pipes, CBC & TSC coupling, axle box, battery box, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, location of lubrication points, etc.	
4.	Location and functions of various equipment of three phase & conventional locomotives	
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 Ensuring loco standing on line & under OHE, general inspection of loco under frame, ensuring various switches/MCBs are in normal position, checking level of all type of oil/coolants & ensure all levels are above 'MIN' mark, availability of fire extinguishers and wooden wedges, etc.	
7.	Energizing, De-energizing & stabling of locomotive & cab changing procedure • Loco energizing sequence/procedure for three phase & conventional locomotives. • Cab changing procedure/sequence • Loco de-energizing procedure/sequence and stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc).	
8.	Description of A9 & SA9 brake valves and their different positions & respective amount BP drop	
9.	• Application/releasing of loco brake, brake power testing procedure of locomotive • Procedure for application/releasing of loco brake & testing of loco brake power of three phase & conventional locomotives	
10	Description and function of ZBAN, ZTEL, BLHOetc	
11	Function & use of BPEMS switch.	
12	Safety items to be checked while taking over charge of locomotives enroute, yard, stabled loco etc.	

Model Room / Field / Simulator training

DURATION
2 days

1/3109873/2024

DESCRIPTION
Driving Module

DURATION
4 days

CONTENT

Sno.	Subject	Duration in days
1.	Methodology of quality Road Learning and its importance.	4 days
2.	Precaution before moving a locomotive – removing of wooden wedges, releasing of hand/brakes, duty with respect to signals, etc.	
3.	Proper call out of signal with ALP • Demonstration of procedure of call out signal as per instructions laid down • This should be demonstrated by each LP multiple times.	
4.	Precaution before attaching/detaching the locomotive on/from load	
5.	Brake continuity, Brake feel & brake power test • Procedure for carry out of brake continuity test and locations/situations where carry out. • Importance of brake feel test & brake power for safety of trains. • Procedure for carry out brake feel test & brake power test.	
6.	Brake power certificates - kinds - Coaching & Freight trains, percentage of brake power required in goods/mixed/passenger trains, etc	
7.	How to start train without jerk and gradual acceleration, deacceleration, etc.	
8.	Observance of permissible speed, permanent & temporary speed restrictions, etc.	
9.	Description of dynamic/regenerative braking procedure and its benefits.	
10.	How to stop train on level, gradient, Controlling of train & coasting, energy conservation etc.	
11.	Use of BPCS and precaution while using it.	
12.	Effect on regenerative/dynamic braking when braking through A9/SA9 and during OHE power failure.	
13.	Description of auto regression feature of locomotives especially in case of full service brake application and emergency brake application.	
14.	MU, Double headed, Push-Pull loco operation	
15.	Train operation in ghat sections	
16.	Passing of neutral section – precaution before neutral section, actions after passing neutral section for resuming traction, etc.	
17.	Precaution to be taken to avoid wheel slipping, wheel skidding, rain burning, train parting, etc.	
18.	Duties of LP defined in ACTM related to loco operation	
19.	Description of tools provided to LP and provided on loco	
20.	• Brief knowledge of caution order, Permanent & temporary speed restriction, OHE boards, Engineering boards, coasting boards and gradient boards and their observance. • Keep watch on alertness of ALP. • Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.	

Sno.	Subject	Duration in days
21.	Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing.	
22.	Looking back in curves for smooth running of train i.e. abnormal sound, hanging part, smoke, etc.	

Footplate / Field visit / Simulator training / troubleshooting

DURATION
2 days

GPM-3

DESCRIPTION

Safety Module – Duties/Role of LP

DURATION

2 days

CONTENT

Sno.	Subject	Duration in days
1.	Derailment, collision, etc	2 days
2.	Train protection and opposite line protection	
3.	OHE hanging / OHE breakdown	
4.	Axle seizure / hot axle	
5.	Smoke from underslung equipment	
6.	During water on track or flood	
7.	Obstructed track / land slide	
8.	Train operation during fog/poor visibility	
9.	In case of train parting	
10.	Flasher light of opposite train glowing	
11.	Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof)	
12.	In case of loco entered in unwired territory	
13.	Cattle Run Over (CRO) & inspection of loco after CRO	
14.	Stabling of locomotives & securing of train/loco to avoid rolling down/rolling back.	
15.	Action to be taken train stalled on gradient	

DESCRIPTION

Loco Operation Module

DURATION

4 days

CONTENT

Sno.	Subject	Duration in days
1.	Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.	4 days
2.	Reading of Trouble shooting directory of various three phase & conventional locomotives.	
3.	EEC & GR manual operation in Conventional loco.	
4.	Wedging of different type of relays & contactors in conventional locomotive	
5.	Flasher light – its checking procedure & usage	
6.	Precautions to be followed in case of any equipment of loco is isolated (as per TSD).	
7.	VCD act on line	
8.	Headlight not working	
9.	Horn not working	
10.	Speedometer not working	
11.	BPEMS acted on line	
12.	Operation of PTDC in three phase locomotive	
13.	Throttle not responding	
14.	Harmonic filter isolation	
15.	MR not buildup	
16.	BP/FP not creating	
17.	BP not maintaining	
18.	Working from rear cab	
19.	Fire in locomotive	
20.	Flat wheel in locomotives & precaution to avoid wheel skid, wheel slip & rail burn (Continuous wheel slip and use of sanders)	
21.	Procedure of attaching dead locomotive in train.	
22.	Function of various safety equipment VCD, Fogsafe/FogPass device, RDAS, etc.	
23.	RTIS equipment, usage and precautions.	
24.	Types of loco faults, reading method DDS, status code and reading of troubleshooting directories.	
25.	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.)	

Footplate / Field visit / Simulator training / troubleshooting

DURATION
2 days

09873/2024

GPM-5

DESCRIPTION

Train Operation Module

DURATION

3 days

CONTENT

Sno.	Subject	Duration in days
1.	Detection of flat wheel in train	3 days
2.	Train stalled on gradient section & precautions to avoid rolling down	
3.	In case of FIBA, VESDA, etc act on line	
4.	In case of Alarm Chain Pulling (ACP) in train	
5.	Brake binding in coach/wagon	
6.	Coach brake system isolation / pneumatically by pass	
7.	Train working in case air suspension bellow ruptured/punctured	
8.	Walkie-talkie not working	
9.	Train working without Guard	
10.	Overview of EOTT	
11.	Hose pipe disconnection	
12.	Tips for good driving technique, controlling of on different terrain, etc.	
13.	Description of booked speed, maximum permissible speed, working time table etc.	
14.	Case Studies	

Footplate / Field visit / Simulator training

DURATION
2 days

GPM-6

DESCRIPTION

Loco Pneumatic Module

DURATION
3 days

CONTENT

Sno.	Subject	Duration in days
1.	Knowledge of braking system of three phase locomotive (including WAG12)	3 days
2.	Working of A9, SA9, parking brake on three phase locomotives	
3.	Overview on braking system of conventional locomotive	
4.	Working of A9 & SA9 on conventional locomotives	
5.	Action to be taken in case of MR pressure not build up	
6.	Action to be taken in case of BP pressure not build up	
7.	Action to be taken in case of FP pressure not build up	
8.	Action to be taken in case of BP pressure not maintaining	
9.	Miscellaneous failures of air brake of locomotive	
10.	Pneumatically isolation of bogie	
11.	Releasing of parking/hand brake in case of brake binding in locomotive	

Sno.	Subject	Duration in days
12.	Location of air dryer and isolating procedure	
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.	
14.	Discussion of various pneumatic failures and remedies	

GPM-7

DESCRIPTION
C&W and Air Brake Module & EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc.

DURATION
4 days

CONTENT

Sno.	Subject	Duration in days
1.	Different types of Rolling stock - Nomenclature	4 days
2.	Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle, BMBS and APS, Hand brake in rolling stock.	
3.	Brake power certificates - kinds - Coaching & Freight trains, percentage of brake power required in goods/mixed/passenger trains, Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc	
4.	Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken.	
5.	LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken.	
6.	Guard & Loco Pilot check - clearance from road side station/sidings/non-TXR points & brake power calculation	
7.	Brake continuity test and its importance, isolation of distributor valve.	
8.	Duties in case of fire in train	
9.	Introduction of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc.	
10.	Familiarization with cab layout and apparatus in cabs Basic functions of EMU/MEMU, Vande-Bharat type train set, etc.	
11.	Basic functions of EMU/MEMU, Vande-Bharat type train set, etc. such as energizing, deenergizing, stabling etc.	
12.	Operation of EMU/MEMU, Vande-Bharat type train set, etc. such as energizing, deenergizing, cab changing, stabling, moving for shunting etc.	

GPM-8

DESCRIPTION

DURATION

TrD Module **1 day**

09873/2024

CONTENT

Sno.	Subject	Duration in days
1.	Introduction to TrD	1 day
2.	Brief of Power Supply arrangement.	
3.	Cantilever - Its parts	
4.	Use of ATD in OHE	
5.	Neutral Section.	
6.	Different type of TrD boards & description	
7.	Panto Entanglement - it's causes	
8.	Instruction of Loco Pilots to in case of tripping of OHE	
9.	Duties of Loco Pilot during OHE unusual and Break Down	

GPM-9

DESCRIPTION
'KAVACH' Module

DURATION
2 days

CONTENT

Sno.	Subject	Duration in days
1.	Introduction to Kavach System Version 3.2/4.0 (Onboard and stationary Kavach) along with Video.	2 days
2.	Sealing arrangements for loco Kavach equipment.	
3.	Onboard Kavach System working on and switch off booting up produces, DMI messages & indications and train configuration.	
4.	Loco Kavach System working (All type of locos).	
5.	Differences between Kavach system Version 3.2 and version 4.0.	
6.	Kavach operation modes along with Videos.	
7.	Mode transition and responsibilities of Loco Pilots.	
8.	Brake Interface Unit (BIU) and Troubleshooting related to Kavach (All type BIUs)	
9.	Procedure for SOS generation and reception in loco Kavach.	
10.	Collision scenarios and action by loco Pilots.	
11.	Recording of Kavach incidences noticed during run in CMS and Engine book.	
12.	User Manual and Do`s and Don'ts.	
13.	Limitations of Kavach.	
14.	Kavach Functionality Demonstration, DMI messages and indications and hands on training in locomotive equipped with Kavach.	

Note :Latest content on KAVACH as issued by IRISET, Secunderabad shall be followed.

GPM-10

DESCRIPTION
Simulator Training& Tripping Car

DURATION
6 days

CONTENT

Simulator Training – simulator training may be imparted to develop good driving skills on level terrain, light ascending terrain, Light Descending Grade, Heavy Ascending Grade, Heavy Descending Grade, entering in loop line, approaching signal on Danger, approaching starter signal, etc.

Tripping car – Practical training of troubleshooting used TSD.

DESCRIPTION
Review & Exam

DURATION
1 day

CONTENT

Review, Exam& Releasing

Instruction for training centers & Instructors(Technical Module)

- The above content is for technical training only. Candidate/trainee would also need to undergo requisite Traffic Transportation training.
- 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.
- While preparing question papers for examinations, the focus should preferably be on the duties of the LP 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.
- 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.
- 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 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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