LP(G) toLP(Pass)/Motorman Promotional Training Course – Electric Traction

	Modules	Duration
A	Transportation Module	12 days
B	Technical Module	36days
	Total	**48 days**

DESCRIPTION
(A)Transportation, First Aid & Fire Fighting

DURATION
12days

Sno.	Subject	Duration in days
1.	Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips.	12 days
2.	Summarizing of Important definitions such as Adequate. 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,	

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	• 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.	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.
14.	Shunting – • Kinds of shunting. • Precautions for safe and smooth shunting. • Rules for shunting in Yard, coaching Yard and "B" class stations. • Model Room training.
15.	• Train operation in fog
16.	Protection Rules
17.	Exchange of Signal & its significance
18.	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
19.	• Duties in case of fire in train.
20.	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.

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(B) LP(G) toLP(Pass)/Motorman Promotional Training Course – Electric Traction

Course Code - CPPM

Module no.	Training Content	Duration in days
CPPM-1	EMU/MEMU Module	3
CPPM-2	Driving Module– EMU/MEMU	6
	Field / Footplate / Simulator Training	3
CPPM-3	Safety & Operation Module	5
	Field / Footplate / Simulator Training	2
CPPM-4	Pneumatic Module– EMU/MEMU	2
CPPM-5	Driving Module - Locomotive	2
CPPM-6	Loco Operation Module – Locomotive	2
CPPM-7	Pneumatic Module – Locomotive	2
CPPM-8	C&W and Air Brake Module & overview of Vande Bharat type train set, Push-Pull etc.	1
CPPM-9	TrD module	½
CPPM-10	'KAVACH' Module	2
CPPM-11	Case Studies EMU/MEMU& Locomotive	2
CPPM-12	Simulator Training – EMU/MEMU& Locomotive	3
	Final Exam	½
	Total days	**36**

Note: After 36-day training at ETC, **12 days** train handling shall be given to the trainee on 'EMU/MEMU Handling on Line' in their respective divisions, 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 trainee LP's performance / confidence after the above handling, it may be extended further with the approval of Sr. DEE (OP) / Sr. DME (P).
- If LP(G)s are intended to be promoted as Motormen solely to operate EMU/MEMU trains, loco specific module (i.e. CPPM-5, 6, and 7, etc) may

be skipped, and the time saved may be utilized in other modules keeping total training duration same.

- If a need arises in any Division/Railway for LPPs to drive DEMU trains exclusively, the course content from CPPM-1 to CPPM-4 may be modified for DEMU train operation, and a 21-day training (including Field/Footplate/Simulator Training) may be imparted with the approval of the PCEE.

CPPM-1

DESCRIPTION
EMU/MEMU Module

DURATION
3 days

CONTENT

Sno.	Subject	Duration in days
1.	Summarizing the general description of electric Multiple Unit (EMU/MEMU) – Three phase & conventional EMU –composition, types of coaches – MC, TC (driving, non driving), speed, Tractive effort, etc.	3 days
2.	Brief description on safety items - undergear safety fittings & intactness (cattle guard, rail guard, coupling, axle box, battery box, air suspension bellow, switch gear, tapchanger, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, location of lubrication points, etc..	
3.	Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, in LT/HT compartment - need to be regularly checked and operated during train operations	
4.	Detailed description of CAB items, switches/controls to be operated by LP. Understanding symbols in HMI and various operations in HMI like brake release etc.	
5.	Safety items to be checked while taking over charge of train.	
6.	Model room/Field demonstration	

CPPM-2

DESCRIPTION
Driving Module– EMU/MEMU

DURATION
6 days

CONTENT

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Sno.	Subject	Duration in days
1.	Methodology of quality Road Learning and its importance.	6 days
2.	Proper Self call out of signal. • Demonstration of procedure of self call out of signal as per instructions laid down • This should be demonstrated by each LP multiple times.	
3.	Energizing (cab occupation) and De energizing an EMU/MEMU rake.	
4.	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.	
5.	Instructions for Joint Brake Power Testing as per ACTM	
6.	How to start train without jerk and acceleration, deacceleration, etc.	
7.	Observance of permissible speed, permanent, & temporary speed restrictions, etc.	
8.	Punctuality of coaching trains, Working time table Maximum permissible speed, etc.	
9.	Description of dynamic/regenerative braking procedure and its benefits.	
10.	Use of BPCS and precaution while using it.	
11.	Use of ENS, PIS configuration.	
12.	Effect on regenerative/dynamic brake upon braking through EP/Auto brakes and no tension of OHE.	
13.	Description of auto regression feature in case of full service brake application and emergency brake application.	
14.	Good driving technique, instructions for train operation, alertness, etc.	
15.	Train operation in ghat sections	
16.	Duties of LP defined in ACTM with respect to EMU/MEMU	
17.	Description of tools provided to LP and provided on Rake	
18.	• Observance of caution order, Permanent & temporary speed restrictions, engineering boards, OHE boards, coasting boards, gradient boards, etc. • Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc. • ADD and ORD of panto.	
19.	Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing.	
20.	Stopping of coaching train with position of coach display board/stop board provided at platform.	
21.	Operation of passenger related amenities – Lights, Fans, Ventilation, Announcements, PIS etc.	

Field / Footplate / Simulator Training **3 days**

CPPM-3

DESCRIPTION
Safety & Operation Module

DURATION
5 days

CONTENT

Sno.	Subject	Duration in days
1.	Types of faults, reading method fault in HMI, status code and reading of troubleshooting directories.	4 days
2.	Working with isolation of different equipment in rake	
3.	Bell codes, Talkback, Fault indication lamps.	
4.	Function & use of BPEMS switch.	
5.	Rescue Driving Mode.	
6.	Train operation in case of Head light defective.	
7.	Train operation in case of SPM defective.	
8.	Train operation in case of HMI defective.	
9.	Train Operation with deflated/punctured bellow.	
10.	Stabling of rake & securing to avoid rolling down/rolling back.	
11.	Action to be taken train stalled on gradient	
12.	Actions to be taken in case of ACP.	
13.	Actions to be taken & inspection of rake in case of CRO.	
14.	Precautions in dead movement of rake.	
15.	Function of various safety equipment VCD, Fogsafe/FogPass device, RDAS, AWS etc.	
16.	RTIS equipment, usage and precautions.	
17.	Cab Changing Procedure.	
18.	Case Studies of various accident – Role of LP	1 day

Field / Footplate / Simulator Training **2 days**

CPPM-4

DESCRIPTION
EMU/MEMU Pneumatic Module

DURATION
2 days

CONTENT

Sno.	Subject	Duration in days
1.	Overview on braking system of three phase EMU/MEMUs	2 days
2.	Working of EP, Auto, dynamic and parking brake on three phase EMU/MEMUs	
3.	Overview on braking system of conventional EMU/MEMU	
4.	Working of EP, Auto and parking on three phase EMU/MEMU	

Sno.	Subject	Duration in days
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 BP pressure not maintaining	
8.	Pneumatically/Electric isolation of brakes.	
9.	Operations and control of pneumatic system from HMI	
10	Releasing of parking/hand brake in case of brake binding.	
11	Location of air dryer and isolating procedure	
12	Procedure of various tests & checks – joint brake power testing	
13	Discussion of various pneumatic failures and remedies	

CPPM-5

DESCRIPTION
Driving Module - Locomotive

DURATION
2 days

CONTENT

Sno.	Subject	Duration in days
1.	Precaution before attaching the locomotive on coaching trains	2 days
2.	How to start train without jerk and acceleration, deacceleration, etc.	
3.	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.	
4.	Description of dynamic/regenerative braking procedure and its benefits.	
5.	Effect on regenerative/dynamic braking when braking through A9/SA9 and during OHE power failure.	
6.	Use of BPCS and precaution while using it.	
7.	Good driving technique, instructions for train operation, alertness, etc.	
8.	Train operation in ghat sections	
9.	Duties of LP defined in ACTM related to loco operation	

CPPM-6

DESCRIPTION
Loco Operation Module

DURATION
2 days

CONTENT

Sno.	Subject	Duration in days
1.	Description and feature of electric coaching locomotives and difference between freight & coaching locos.	2 days
2.	Hotel load and related troubleshooting.	
3.	Reading of Trouble shooting directory (in-built/external) of various three phase & conventional locomotives.	
4.	Precautions to be followed in case of any equipment of loco is isolated (as per TSD).	
5.	Flat wheel in locomotives & precaution to avoid wheel skid, wheel slip & rail burn (Continuous wheel slip and use of sanders).	
6.	VCD act on line.	
7.	Operation of PTDC in three phase locomotive.	
8.	Working from rear cab.	
9.	Function of various safety equipment VCD, Fogsafe/FogPass device, RDAS, etc.	
10.	RTIS equipment, usage and precautions.	
11.	Section clearing in case of SIV internal fault.	
12.	Description of auto regression feature of locomotives especially in case of full service brake application and emergency brake application.	
13.	Push-Pull loco operation.	
14.	EEC & GR manual operation in Conventional loco.	
15.	Wedging of different type of relays & contactors in conventional locomotive.	
16.	Attaching procedure of dead locomotive	

CPPM-7

DESCRIPTION
Loco Pneumatic Module

DURATION
2 days

CONTENT

Sno.	Subject	Duration in days
1.	Overview on braking system of three phase & conventional locomotives	2 days
2.	Action to be taken in case of MR pressure not build up	
3.	Action to be taken in case of BP pressure not build up	
4.	Action to be taken in case of FP pressure not build up	
5.	Action to be taken in case of BP pressure not maintaining	
6.	Miscellaneous failures of air brake of locomotive	
7.	Pneumatically isolation of bogie	
8.	Releasing of parking/hand brake in case of brake binding in locomotive	
9.	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.	
10.	Discussion of various pneumatic failures and remedies	
11.	BPEMS functions and usage	

CPPM-8

DESCRIPTION

DURATION

C&W and Air Brake Module & Vande-Bharat type train set, Push-Pull, etc. 2024/E(Trg)/41/13 **1 day**

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CONTENT

Sno.	Subject	Duration in days
1.	Different types of coaching stock - Nomenclature	1 day
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 trains, percentage of brake power required inmixed/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, isolation of distributor valve, isolation of bogie pneumatically, etc.	
5.	LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken.	
6.	Brake continuity test and its importance	
7.	Overview of Vande-Bharat type train set, Push-Pull, etc.	

CPPM-9

DESCRIPTION
TrD Module

DURATION
½ day

CONTENT

Sno.	Subject	Duration in days
1.	Introduction to TrD	½day
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	

CPPM-10

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	

Sno.	Subject	Duration in days
	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.

CPPM-11

DESCRIPTION
Case Studies

DURATION
2 days

CONTENT

Case Studies of various accidents and lessons. (Particularly focusing on scenarios where prompt actions by Motormen could have averted the incidents or accidents.).

CPPM-12

DESCRIPTION

Simulator Training - EMU/EMEU/Locomotive

DURATION
3 days

CONTENT

Simulator Training – Simulator training may be imparted to develop good driving skills on different type of terrains, jerk free starting & stopping, acceleration & deacceleration, controlling of speed etc.

DESCRIPTION
Review & Exam

DURATION
½ day

CONTENT

Review & Exam

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 LPP/Motorman 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.

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- 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 crew 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 LPP/Motorman 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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