

TRAINING MODULE FOR PANEL OPERATOR
DURATION=12 WORKING DAYS (12x6=72 HRS)

Sl.No.	Topic	No. Of classes
1.	Brief idea about Railway & its objective, Brief idea of Important Definitions.	2
2.	Signals: Evolution of Signals, Fixed Signals in Multiple Aspect Territory, Distant, Inner Distant, Combination of Distant Signal with Last Stop Signal & Gate Stop Signal, Home, Routing Home, Starter, Intermediate Starter, Advanced Starter Calling-on Signal, Shunt Signal – Types Gate Stop Signal – with & without 'G' Marker, Intermediate Block Stop Signal, Hand Signals & their use, Fog/Detonating Signal, Fog Signalling, Warning Signal & Demo.	8
3.	Interlocking : Definition, Basic Principles of Interlocking, Types, Various standards of Interlocking, its advantages. Isolation: Definition, various means of isolation, Substitutes of SOL, Advantages of Isolation.	2
4.	Classification of Stations, Minimum Equipment of Signals in Multiple Aspect Area, Station Section, Block Section, Conditions for granting Line Clear, Station Diagrams with MAUQ/MACL Signals at Different Classes of Stations.	2
5.	Conditions for taking 'off' Signals	1
6.	Points & setting of Points, Failure of Points – Use of S&T(NM), S&T(DN), Hands on Training on Crank Handle, Clamping & padlocking of Points, Use of Through bolt & cotter, etc	2
7.	Signal Failure: Failure of all Signals-Reception & Departure Stop Signals, Passing Intermediate Block Stop Signal at 'ON', Passing Gate Stop Signal at "ON", Reception on Obstructed/Non-Running/Non-Signalled line, Despatch from a Non-Running / Non-Signalled Road, a line out of group of lines with Common Starter.	2
8.	Panel, Panel buttons and their use, Lever frame – different levers and their use, RRI, EI & VDU – Parts & Functions – Hands on Training on Use of Lever Collar, Slide Pin, Button Cap and Key of SM's slide, Block Instrument Key, caution plate, no voltage plate/button collar Normal Reception & Despatch, R&D during Signal Failure, Point Failure, Panel Failure, Shunt Movements.	8
9.	Shunting – Definition, Types, Control & Supervision of Shunting, Shunting on Gradients, Shunting Authorities, Shunting Techniques to maintain fluidity in Big Yards-Coaching/Goods measures to prevent accident during shunting movement. Securing of Vehicles/Engine, Escaping of Vehicles– Stabling at Station, Train Stalled in Mid section Ghat rules – Slip siding and catch siding.	4
10.	Bursting of points, Fire on train.	1
11.	Working of Level Crossings – Types of LC, Classification– Working at Manned Interlocked & Non-Interlocked LC-Failure of LC, Abnormal working at LC.	2
12.	Working of Trains in Electrified Sections - Parts of OHE-Power Supply arrangements, doS & donts, Precaution. Operation of Isolator Switches, Authorized Persons, Types of Power Block, Precautions & Procedures.	2
13.	Brief idea of System of Working: Absolute Block System & Automatic Block System.	3

14.	Block Instrument/Track Circuit/Axle Counter & BPAC – UFSBI (single and double line) Objective of provision.	2
15.	Block Instruments : Single line and Double line Parts & Functions Precautions before granting/asking Line Clear, before closing the Block Section, Testing before Taking over charge Failure Occasions – Restoration by S&T Officials, SMs themselves, DSTE/ASTE, Hands on Training – Normal working, Normal Cancellation, Push back Cancellation & Testing. Block Failure – Follow Up Action.	8
16.	Train dividing Train parting.	2
17.	Mechanical : Rolling Stock – Features & Specifications how it rolls on Track – Track Bound, LHB and Hybrid coaches, Locomotives - Kind, Features and Specifications Examinations - kinds, Things to be observed and Specifications, ROH, IOH, POH of Rolling Stock Brake System – Working of Air Brake System – Hand Brake in Wagons, GDR. Check, Resetting of alarm chain apparatus, Abnormal occasions – Flat Tyre, Brake Binding, Hot Axle, open door etc Brake Power Certificates – Various kinds of Coaching & Freight BPCs, Guard and Loco Pilot Check-Clearance from IMS station Trouble Shooting of LHB coach,	6
18.	EOL, GPWIS, Free time Rules, Loading unloading operations, left over material in the wogons, damage to wagons during loading/unloading and its repercussions, Open door or improper closing of doors, hanging parts, Loose packing, importance of reducing detention to rolling stocks, demurrage and its implications.	2
19.	Accidents – Definitions, Classification, Reporting, Measures to prevent accident.	3
20.	Fire Fighting – Theory & Demonstration, Civil defence. Types of fire, causes of fire in train and at station, types of fire extinguisher, upkeep/readiness and use of fire extinguisher. Prevention of fire. Half day for Hands on Practice.	2
21.	Field Training	6
22.	Examination: (Full Marks-100, Pass Mark-60) Questions will contain 70% objective and 30% subjective type questions)	2