Government of India (Bharat Sarkar)
Ministry of Railways (Rail Mantralaya)
(Railway Board)

RBE NO. 66/2019

No. E(MPP)2017/3/9

New Delhi, Dated 23.04.2019

The General Managers,
All Indian Railways/PUs,
Metro Railway/Kolkata
Railway Electrification/Allahabad
DG/RDSO/Lucknow
CAO/DMW/Patiala
CAO/COFMOW/New Delhi

DG/NAIR/Vadodara
The Directors,
IRIEEN/Nasik
IRIMEE/Jamalpur
IRICEN/Pune
IRISET/Secunderabad
ED/CAMTECH/Gwalior

Sub:Revision of Refresher Course for Supervisor/SSEs/(P.Way) of duration of 3–weeks (17 days) at SSTW/Pune.

To clear the backlog of Refresher Training of Supervisor/ SSEs/ (P.Way), the proposal of IRICEN for imparting Refresher Training at SSTW/Pune has been approved by Ministry of Railways.

Further, Ministry of Railways has accepted the proposal of revision of training modules of Refresher Course for Supervisor/ SSEs/(P.Way) to 3 weeks (17days) duration which inter-alia include all the contents of Refresher courses mentioned in Board's letter No. E(MPP)/2009/3/17 dated 23.02.2010 (RBE No.34/2010) and in addition, includes relevant new topics like 'co-ordination aspects with S&T and Electrical Department, preventive vigilance, ethics and integrity etc.

Training Modules/detailed course content is enclosed as Annexure 'A'.

Monica 10/4/19

(Monica Singh)
Director/MPP
Railway Board

O/C

26/4/19

No.E(MPP)2017/3/9 New Delhi, dated: 23.04.2019

Copy to:

1) The General Secretary, NFIR, 3 Chelmsford Road, New Delhi for information with 35 spares
2) The General Secretary, AIRF, 4 State Entry Road, New Delhi for information with 35 spares.
3) The Secretary General, FROA, R.No.256-A, Rail Bhavan, New Delhi for information with 5 spares.
4) The Secretary General, IRPOF, R.No.268, Rail Bhavan, New Delhi for information with 5 spares.
5) All Members, Department Council & Secretary Staff side National Council 13-C, Ferozeshah Road, New Delhi with 90 spares.
6) The Secretary General, AIRPF Association, Room No.256-D, Rail Bhavan, New Delhi with 5 spares.
7) General Secretary, All India SC & ST Railway Employees Association, 171/B-3, Basant Lane Railway Colony, New Delhi (15 copies).

For Secretary/Railways

No.E(MPP)2017/3/9 New Delhi, dated: 23.04.2019

Copy to:

i) PS & ED(PG) to MR, MSR(A) & MSR(K)
ii) PSO/Sr.PPS to CRB, FC, ML, ME, MM, MS, MT, DG(RHS) & DG(RPF)
iii) Sr.PPS/PPS/PS to AM(Budget), AM(CE), AM(C&IS), AM(Comml.), AM(Elect), AM(Fin), AM(Mech.), AM(Plg.), AM(Project), AM(PU), AM(Sig.), AM(Staff), AM(RS), AM(T&C), AM(Tele), AM(Traffic), AM(Works), Adv.L(RS), Adv(Vig.), Adv.Fin(Exp), Adv(IR), Adv(Safety), LA, OSD(MIS).
iv) ED(Plg.), ED(Accts.), EDF(BC), EDCE(B&S), EDCE(G), EDCE(Plg.), ED(CHG), ED(CC), ED(C&IS), ED(E&R), EDEE(Dev), EDEE(G), EDE, ED(RRB), EDE(N), EDE(Res), EDF, EDF€, EDF(S), EDF(B), EDF(RM), EDF(X)I, EDF(X)II, ED(H), EDLM, ED(MIS), EDE(GC), ED(T&MPP), EDME(Chg.), EDME(Fr.), EDME(Tr.), EDME(TOT), EDME(Dev.), EDME(W), ED(PC)I, ED(PC)II, ED(PP), ED(Project), ED(Project)/DMRC, EDRE, ED(Safety), JS, JS(C), JS€, JS(P), IG./RPF(Hqs), IG/RS, ED(S9g.), ED(Stat&Econ.), EDRS(C), EDRS(G), EDRS(P), EDRS(S), EDRS(W), ED(TD), EDTT(M), EDT(MC), EDT(P), ED(T&C), EDCE(P), ED(PM), ED(PG), EDTC-I, EDTC(FM), EDTT(F), EDTT(FM), EDTT(S), EDV(A), EDVE, EDV(T), ED(W).
v) Chief Commissioner of Railway Safety, Lucknow.
vi) E(Trg.), E(NG)I, E(NG)II, E(G), F(E)I, F(E)II, F(E)III, E(SCT)I, E(SCT)II branches of Railway Board.

Annexure-A

TRAINING MODULE DETAILS OF P.WAY REFRESHER COURSE PRPOSED BY IRICEN			
CATEGORY: SSE/JE PWAY		DURATION: 17 DAYS (136 PERIODS)	
ITEM NO.	DESCRIPTION	PDS	REF. NO. OF TRG. DTE. REFRESHER MODULE
	PART I- TRACK COMPONENTS	3	PSERE102
1	**RAILS & JOINTS**	1	
1.1	Instruction for handling of rails.	2	
1.2	**Technical film/Video Clips/Photographs**- Rail handling, Unloading of Rails from EUR, Rail Grinding including profile measurement	2	PSERE103
2	**SLEEPERS & FASTENINGS**	1	
1.1	**Concrete sleepers:** Mono-block PSC Sleepers,Special sleepers for L xings, turnout, SEJ, bridges approach, Slack gauge sleepers for curves (>4^0), special curve for sharp curve(>8^0), wider sleeper, Sleeper Density on different routes	1	
2.2	**Elastic Fastenings:** Malleable cast iron inserts Elastic Rail Clips: Various types – ERC mark III, mark V, zero toe load, GJ clip. Toe load measurement of ERC, Criteria for ERC renewal. Rubber pads: Different types. Liners : Different types, GFN liners, metal liners, combination liners Modern elastic fastenings viz. Vossloh, Nabla etc.	1	
3	**BALLAST**	4	PSERE104 & PSERE 111
3.1	Ballast sections on different routes for straights and curves on single/double lines, On different gauges for fish plated track, SWR and LWR, Sections for branch lines, Loop and sidings.	1	
3.2	Specification for track ballast, measurement & testing of ballast	2	
3.3	Ballast depot, training out ballast, DMT operation	1	
	PART II- TRACK STRUCTURE	1	PSERE106
1	**TURNOUTS - INTRODUCTION**		
1.1	Different types of turnouts : 1 in 8.5 , 1 in 12 & 1 in 16 Different types of switches – straight switches, Curved switches, Thick web switches, Derailing switches Different types of crossings - ordinary built-up and CMS crossings, swing nose crossing. Spring points.	1	
2	**TURNOUTS - ASSEMBLY & LAYING**	4	PSERE107
2.1	Laying, Inspection& Maintenance of fan shaped turnouts, Spring setting device, maintenance of turn in curves.	2	
2.2	Permissible Speed on Turnouts, strengthening of loop lines for 30kmph/ 50kmph.	1	
2.3	**Tutorial on** drawings of various Turnout & their assembly	1	
3	**CROSSOVERS**	5	PSERE108
3.1	Calculation for laying cross over, Cross over between straight parallel tracks with same & different no. of crossings.	1	
3.2	Cross over between curved parallel tracks, Cross over between inclined tracks.	1	
3.3	Scissors X-over, Definition and description of components and parts, Standard layouts, Methods of assembly, Main dimensions for setting out.	1	
3.4	**Hands on** to Computer software for layout calculation	2	
4	**LEVEL CROSSINGS**	2	PSERE109
4.1	**Level crossings:** Classification, types, equipments at LC, knowledge of rules of gatemen, competency, medical, statutory provisions of Railway Act on LC. GWR protection diagram, slide boom operation, Census at L- xing.	1	
4.2	Inspection of L-xing, Speed breakers, Road sign Boards, Provision of new LC, Manning, De- manning, interlocking and replacement with ROB, closure, shifting and replacement with LHS/ RUBs , Elimination of LC.	1	

5	**BRIDGES & TRACK STRUCTURE ON BRIDGES**	**4**	**PSERE110**
5.1	**Bridges**: Classification, Types, Track Structure on girder Bridges, ballasted decks, arch bridges, provision of guard rails, re-railing ramps.	1	
5.2	Laying & Maintenance of steel channel sleeper & H beam sleeper, Introduction to RH girder & CC cribs.	1	
5.3	Inspection& maintenance of bridge, Numerical Rating System.	2	
	PART III- CURVES	**4**	**PSERE123**
1	**Concept of CURVES**	1	
1.1	Types of curves, Radius & Degree of curve, Relation between degree & Radius, Curve indication boards &Rail posts.	1	
1.2	Super elevation / equilibrium cant, Maximum cant for normal and high speed trains, Cant deficiency and cant excess, Formula for safe speed on curves, Equilibrium speed, Calculation of cant to be provided and permissible speed, Transition length, Maximum cant gradient, Rates of running out of cant and cant deficiency, grade compensation.	2	
1.3	Miscellaneous - Running out cant on transitioned curves, laying of rails on curves, Mid stagger joints on sharp curves, Lubrication on curves, check rails on sharp curves, Widening of gauge on curves, Extra clearance on curves, minimum length of straight between reverse curves.	**5**	**PSERE125**
2	**REALIGNMENT OF CURVES**	1	
2.1	Criteria for Re-alignment of curves, String lining of curves.	4	
2.2	**Hands on**Curve Realignment using Computer software.		
	PART IV- WELDED RAILS	**4**	**PSERE114**
1	**WELDING OF RAILS**	1	
1.1	SKV, Wider gap Welding, compressed air preheating, 3 piece mould AT welding technique, New development in AT-weld.	1	
1.2	Precautions during AT welding, Tolerances for finished AT welds	1	
1.3	Flash Butt welding, Testing of FBW welds, Mobile flash-butt welding planning & executing of TWR with MOBILE FBW PLANT including tender schedule, specifications & conditions.	1	
1.4	**Technical film/Video Clips/Photographs** on AT welding, FBW Welding	**1**	**PSEIN112**
2	**SHORT WELDED RAILS (SWR)**	1	
2.1	Track Structure for SWR, Maintenance of SWR.	**10**	**PSEIN113**
3	**LONG WELDED RAILS (LWR)**	1	
3.1	Theory & concept of LWR.	1	
3.2	Permitted locations for laying, Track Structure, Laying of LWR.	1	
3.3	Different types of SEJ- laying, inspection & maintenance.	1	
3.4	De-stressing: Criteria for De-stressing, method of De-stressing without tensor/ with rail tensors.	1	
3.5	Repairs of Rail fracture.	1	
3.6	Repairs of buckling.	1	
3.7	Regular track maintenance operations on LWR, Cold & hot weather patrolling	1	
3.8	Special track maintenance on LWR	1	
3.9	Inspection of LWR and remedial actions for correction of gaps at SEJ, Hysteresis loop.	1	
3.10	Competency level to carry out various works in LWR track, Dos & Don'ts.	**12**	**PSEIN102**
4	**USFD Testing**	2	
4.1	Rail/Weld Failure – Reporting, codification, preservation of Rail/weld piece for M&C testing	4	
4.2	USFD: Ultrasonic flaw detection, fundamentals of ultrasonic waves, defect detection, need based concept of USFD, frequency of testing, brief description of various types of USFD machines and probes used, calibration and sensitivity checking, limitations of USFD, USFD Flaw /defect, marking of defects. Action to be taken for different Rail/Weld USFD flaws. SPURT Car, Recent developments,	2	
4.3	**Technical film/Video Clips/Photographs**showing USFD testing, flaw pattern, etc.		

4.4	Hands on USFD Testing.	4	
	PART V - INSPECTION AND MAINTENANCE OF P.WAY	3	PSERE101
1	**INSPECTION AND DUTIES**	1	
1.1	Duties of JE/ SSE /P. Way,track maintainer, keyman, mate.	1	
1.2	Inspection schedule of JE/P.Way/SSE/P.WAY (sectional/ Incharge)	1	
1.3	Pway inspecting kit	5	PSERE115/116
2	**MAINTENANCE OF TRACK**	1	
2.1	Annual Programme for regular Track maintenance, Through packing, Overhauling, Picking of slacks, Lifting and lowering of track.	1	
2.2	Record of Gang work, Gang chart/diary, Keyman's diary, Mate's diary, Record of work of Artisans and other workmen.	1	
2.3	Half yearly reports on conditions of permanent way, PWI's Section Register, P. Way plans and diagrams	1	
2.4	Deep screening of ballast	1	
2.5	Lubrication of joints and lubrication of rails in straight on work spot and on curves, maintenance of rail joints, lubrication on switches, lead rails	12	PSERE119
3	**MECHANIZED MAINTENANCE**	1	
3.1	3 tiers system of track maintenance, Working of MMUs	1	
3.2	Small track machines: types, use in maintenance, spot attention with off track tampers , Troubleshooting and system of repairs & maintenance, procurement	1	
3.3	**Technical film/Video Clips/Photographs**on working of STM.	1	
3.4	Introduction to different types of track machines viz. Duomatic, CSM, tamping express, DTS, Unimat, BRM, FRM, BCM etc.	1	
3.5	Pre-requisites to tamping and other machine working, Pre & Post tamping attentions and attentions during tamping.	2	
3.6	Working principles of tamping machine - 3 point & 4 point lining	1	
3.7	Design mode of tamping.	1	
3.8	Deep screening of ballast with BCM machine.	1	
3.9	**Technical film/Video Clips/Photographs/ photographs** on working of different track machines	2	
3.10	**Hands on**- field marking of slew, lifting and Vm/H value marking on sleepers.	2	PSERE121
4	**RECONDITIONING OF MATERIALS AND TOOLS**	2	
4.1	Reconditioning of worn out crossings and switches, type of electrodes, RDSO approved vendors, translamatic robotic welding- planning, execution including schedule, conditions& specifications.	3	PSERE127
5	**TRACK RECORDING & MONITORING**	2	
5.1	Track Monitoring: Track Recording Cum Research Car (TRRC), Oscillograph car, OMS,	1	
5.2	Riding quality, Track Quality Index(TQI), Track geometry, various track tolerances	7	PSERE129
	PART VI- TRACK MANAGEMENT SYSTEM (TMS)	2	
1.1	**Hands On:**Generation of various Report and Registers, Track Diagram.	2	
1.2	**Hands On:**Fracture Entry, USFD entry &Rail/Weld failure reports, Miscellaneous Module.	3	
1.3	**Hands On:**Store Module.		
	PART VII- SAFETY	2	PSERE128
1	**ACCIDENTS**	2	
1.1	Accident manual, Accident proforma	1	PSERE120
2	**TROLLEY/LORRY/DOLLY WORKING**		
2.1	Working of Push Trolley, Lorry & motor Trolley, rail dolly, Competency Certificate.	2	PSERE117
3	**PROTECTION, RESTRICTIONS & INDICATIONS**	2	
	Safety at Work site, Hand signals in day and night, Hand flags, Hand lamps, Banner flags, Detonators, life of detonators, testing, fog signals, Engineering Indicator Boards, Works of short and long duration, Protection during emergency Caution order.	2	PSERE118
4	**PATROLLING**		

4.1	Kinds of patrolling i.e. Key men's daily patrol, Gang patrol, Monsoon security, Stationary Watchman at vulnerable points, Weather warnings, Single and double frequency patrolling.	1	
4.2	Patrol charts, Patrol books and equipments, selection and duties of Patrolmen.	1	
5	**CRS SANCTION & SCHEDULE OF DIMENSIONS**	2	PSERE122
5.1	Works requiring CRS sanction, procedure for getting CRS sanction, Movement of ODC.	1	
5.2	Various schedules of dimensions related to P. Way	1	
6	**COORDINATION ASPECT WITH S&T AND ELECTRICAL DEPARTMENT**	3	
6.1	**Coordination Aspect with S&T Department:**Working in track circuited areas - maintenance of track circuited sections, use of insulated trolleys, maintenance of insulated joints, glued joints. Felling/Cutting/pruning of trees obstructing view of signal	2	
6.2	**Coordination Aspect with Electrical Department:**Maintenance in electrified areas: Felling/Cutting/pruning of trees obstructing view or very close to OHE	1	
	PART VIII- TRACK RENEWALS	3	PSERE126
1.1	Scope &Criteria for Complete track renewals(CTR), Through rail renewals(TRR), Through Sleeper renewals(TSR), Through fitting renewal(TFR) and Through ballast renewal(TBR), Through Bridge Timber Renewal(TBTR), Through Turnout Renewal(TTR), Through Weld Renewal(TWR)	2	
1.2	**Technical film/Video Clips/Photographs:** Relaying with PQRS equipment, Track relaying train, Relaying of turnout with T-28.	1	
	PART IX- TRANSPORTATION-I (G& SR)	3	PSERE133
1.1	Various systems of working, Essentials of absolute & automatic block system, important definitions, General & subsidiary rules applying to Railway servants	2	
1.2	Classification of stations, Simple layouts & condition for granting permission to approach, single line working on double line, Reception of train on blocked line and starting from non-signaled line,	1	
	PART X- LAND MANAGEMENT	2	PSERE131
1.1	Demarcation of land boundaries, Licensing/leasing, Way-leave facility, NOC to private buildings near railway track.	1	
1.2	Type of encroachments and PPE Act.	1	
	PART XI- OFFICE & STORES	6	PSERE134
1.1	Procuring of office stationary and stores, Procuring of P. Way stores for maintenance and for special works, Classification of stores, Accountal of stores, DS- 8 note, RE-9B, MTO, adjustment, memo, Stock verification reports, Disposal of scrap & surplus stores, Overhauling of stores, Numerical ledgers & inventory control.	2	
1.2	Classification of stores, Stock verification, Stock sheet, Submission of returns, Inventory control, Maintenance of DMTR and ledgers, Submission of store returns in time, Materials at site register, Imprest Store, T&P Store.	2	
1.3	**Preventive Vigilance**	2	
2	**PERSONNEL**	4	PSERE135
2.1	Passes and leave Rule, D&A Rules	1	
2.2	Establishment Records in SSE/ JE P Way office, Settlement:- PF, Pension, Gratuity, Leave Encashment; Filling up of Pension Booklet, Welfare Schemes & SBF	1	
2.3	Industrial Relations:-Unions & Associations, PNM, JCM	1	
2.4	Workmen's Compensation Act, Action in case of injury on duty, Ex- Gratia Payment, Hours of Employment Regulations.	1	
3	**RAJBHASHA**	1	PSERE136
3.1	Directives in use of Raj-Bhasha in day-to-day working.	1	
	PART XIII- CONTRACT MANAGEMENT	3	PSERE130
1.1	Introduction to tender & contracts, different Types & forms of contract, GCC & SCC, SOR for P. Way works, Earnest money, Security deposit.	1	
1.2	Various registers to be maintained for progress, Quality.	1	
1.3	Preparation of Contractor's On-Account/Running & Final Bills, Material Statements, Maintenance Period, Warranty/guarantee clauses, release of	1	

	security deposit, Time extensions to date of completion of contract		
	PART XIV- COMPUTER & THEIR USAGE	**4**	**PSERE132**
1.1	**Hands On:** MS- Office: Word, Excel, PowerPoint	4	
	PART XV - MISCELLANEOUS	5	
1.1	Ethics & integrity	1	
1.2	Disaster Management including Fire Safety	1	
1.3	Reporting/ introduction/ valedictory/ examination/ viva-voce, etc	3	
	Total 17days	**136**	
	SUMMARY		
1	**CLASSROOM LECTURES**	**98**	
2	**TECHNICAL FILM/VIDEO CLIP/PHOTOGRAPHS**	**8**	
3	**TUTORIALS**	**1**	
4	**HANDS ON**	**24**	
5	**MISCELLANEOUS**	**5**	
	GRAND TOTAL	**136**	

S No.	TECHNICAL FILM/VIDEO CLIPS/PHOTOGRAPHS	Periods
I/1.2	**Technical film/Video Clips/Photographs**- Rail handling, Unloading of Rails from EUR, Rail Grinding including profile measurement	2
IV/1.4	**Technical film/Video Clips/Photographss** on AT welding, FBW Welding	1
IV/4.3	**Technical film/Video Clips/Photographss**showing USFD testing, flaw pattern, etc.	2
V/3.3	**Technical film/Video Clips/Photographs**on working of STM.	1
V/3.9	**Technical film/Video Clips/Photographss/ photographs** on working of different track machines	1
1.2	**Technical film/Video Clips/Photographs:** Relaying with PQRS equipment, Track relaying train, Relaying of turnout with T-28,	1
	Hands On	
II/3.4	**Hands on** to Computer software for layout calculation	2
III/2.2	**Hands on** to Computer software for curve realignment calculations.	4
IV/4.4	**Hands on** USFD Testing.	4
V/3.10	**Hands on-** field marking of slew, lifting and Vm/H value marking on sleepers.	2
VI/1.1	**Hands On:**Generation of various Report and Registers, Track Diagram.	2
VI/1.2	**Hands On:**Fracture Entry, USFD entry & Weld & fracture reports/Miscellaneous Module.	2
VI/1.3	**Hands On:**Store Module.	4
XIV/1.1	**Hands On:** MS- Office: Word, Excel, PowerPoint	4
	Tutorial	
II/2.3	**Tutorial on** drawings of various Turnout & their assembly	1