

COURSE MODULE

Course No. CE 36: Special Course for SSE/JE (P.Way)

Duration:2Weeks

Effective Days:12

CM No.	Subjects Session wise Contents	Periods	Total Periods
36.1	Introduction: History of Mechanization on Indian Railways, Induction of various Track Machines in chronological order, type of machines, Weightage factor of machines.	2	2
	IRTMM: Track Machine organisation Duties of Divisional officers and staff in charge of P. Way, Planning, Operation & Monitoring of different track machines, Rules for movement & working, Competency certificates. Safety precautions and action in case of emergency	2	2
	RDSO reports on Repair & Maintenance of machines: RDSO TM Reports, maintenance schedules, workshops (CPOH, ZMD, SMD, Mobile workshop)	1	1
	IRTMM: Brief on other Chapters of IRTMM, Weightage factor of machines. Life and Condemnation of machines. Staff requirement and infrastructure facilities, Stores.	1	1
36.2	Introduction to Electrical and Electronic of Machines:		4
	General idea about Electrical & Electronics, Various Electrical & Electronic components , different power supply PCBs ,Safety & Warning Systems on machines,	2	
	Understanding of Driving System Tamping Unit control System, PLC & Multicheck Systems, Lining & Levelling Control Systems	2	
36.3	Introduction to Hydraulics, Pneumatic and mechanical assemblies:		4
	General idea of Hydraulic & Pneumatic Systems.	2	
	Mechanical Assemblies of Tamping Machines, Mechanical Assemblies of Ballast Handling Machines, Braking system in machines in general.	2	
36.4	Internal Combustion Engine:		2
	General idea of Engines, Various types of engines used on machine with their general data and Demonstration in Model Room.	2	
36.5	Track Machines & Working Principles:		14
	Tamping Machines: Working Principles including Design Mode of working of Tamping Machines.(3& 4-Point lining and Levelling)	2	
	08- Duomatic and WST- Main features, Technical Data, Main assemblies & components, Power Transmission and Working Principles.	2	
	09-32 CSM - Main features, Technical Data, Main assemblies & components, Power Transmission and Working Principles.	2	
	09-3X Tamping Express - Main features, Technical Data, Main assemblies & components, Power Transmission and Working Principles.	2	
	08-275 Unimat 2S &3S - Main features, Technical Data, Main assemblies & components, Power Transmission and Working Principles.	2	
	UNIMAT-4S - Main features, Technical Data, Main assemblies & components, Power Transmission and WorkingPrinciples.	2	
	Multi-Purpose Tamper(MPT) - Main features, Technical Data, Main assemblies & components, Power Transmission andWorkingPrinciples.	2	

	Dynamic Track Stabilizer:		
	DTS/DGS and 3x-Dynamic Tamper- Main features, Technical Data, Main assemblies & components, Power Transmission.	2	2
	Ballast Handling Machines:		
	BCM RM-80/80-92 U/HOTBCM - Main features, main units & their functions, Technical Data, Power Transmission, Working Principle & Precaution during work.	2	8
	FRM-80 –Main features, main units & their functions, Technical Data, Power Transmission, Working Principle & Precautions.	2	
	FRM-85F –Main features, main units & their functions, Technical Data, Power Transmission, Working Principle & Precaution during work.	2	
	BRM –Main features, main units & their functions, Technical Data, Power Transmission, Working Principle & Precaution during work.	2	
	Track Laying Machines:		
	PQRS – Main features, main units & their functions, Yard Activities, Panels Fabrication, Rake Formation, Base Depot Amenities, Working Principle, Auxilliary Track and Mode of Working.	2	8
	TRT – Main features, main units & their functions, Yard Activities, Modified BRHs, Rake Formation, Working Principle & SRs after relaying.	2	
	T-28 – Main features, main units & their functions, Power Transmission & Working Principle.	2	
	RGM – Main features, main units & their functions, Power Transmission.	2	
	Special Purpose Machines:		2
	UTV, RBMV, M DU	2	
36.6	Computer:		6
	Introduction to Automatic Guiding Computer (ALC) Hardware & Win ALC Software.	2	
	Working in Geometry, Measuring Run & Design Mode.	2	
	Hands on on ALC working, DRP,CMS,CWS	2	
36.7	Library	2	2
36.8	Visit to CPOH & Track Machines Working Sites	8	8
36.9	Introduction & Valediction	2	2
	Total	68	68

Note: 1. Eligibility: Newly Recruited SSE/JE (P.Way).

- 2. Computer, Technical Film Show and Library periods shall be scheduled during the afternoon session.**
- 3. To bridge the gap between theory and practical, 1 visit to CPOH and 1 day visit to Track Machines Working Site shall be arranged for demonstration and proper understanding of machine working.**
Practical demonstration in Model rooms shall be given along with theoretical sessions as and when required.