

COURSE MODULE

Course No. CE 30: Refresher Technician

Duration:2 Weeks

Effective Days:12

S. N.	CM No.	Subjects	Periods	Total Periods
1	30.1	Electrical & Electronics:		12
		Electrical Symbols and Electronics Components.	1	
		Battery.	1	
		Alternator and Self Starter	1	
		Relay.	1	
		Transducers and their calibration.	1	
		Description of Engine Circuit their safety	1	
		Description of ZF Circuit their safety	1	
		Power Supply PCBs	1	
		Programmer Unit, Logic Plan & Multi-check.	1	
		Tamping Unit Control Circuit	1	
		Lining Control Circuit	1	
Leveling & Lifting Control Circuit.	1			
2	30.2	Hydraulics, Pneumatics & Mechanical:		10
		Hydraulic Components: Filter, Hoses & Fittings, Seal & O Ring	1	
		Pumps, Motors, Cylinder, & Accumulators and Troubleshooting	2	
		Pressure Control, Directional Control & Flow Control Valves and Troubleshooting.	1	
		Tamping Unit, Lifting & Lining Unit, Bushes & Bearings, Fast wearing mechanical parts and Troubleshooting	1	
		Power Transmission: Types, Mechanical & ZF Hydro-dynamic Gear Box and other related Assemblies and Troubleshooting.	1	
		Pneumatic Components: Air Compressor, Cooling Coil, Safety valve	1	
		Air dryer, Water separator, Air oiler DC Valve, Cylinder and Troubleshooting. Braking system (KE Valve).	1	
		Demonstration of Hydraulic & Pneumatic Models in Hydraulic model room.	2	
3	30.3	I.C. Engine:		10
		Constructional Details of Engine.	1	
		Basic Terminology, Working Principle of 4 Stroke Diesel Engine (Diesel cycle), Firing orders	1	
		Main Systems of I.C. Engine: Air Supply System	1	
		Adjustment of Injection timing & Removing of Air Lock	1	
		Main Systems of I.C Engine: Fuel Supply System .	1	
		Main Systems of I.C. Engine: Lubricating System	1	
		Main Systems of I.C. Engine: Cooling System.	1	
		Maintenance Schedules of Cummins Engine	1	
		Maintenance Schedules of deutz & MWM Engine	1	
Troubleshooting.& Failure analysis.	1			
4	30.4	Track Machines & Working Principles:		14
		Provisions of IRTMM	1	
		Basic features of Track Machines & Tamping Quality Control.	1	
		Rules for movement and Block working including action in case of machine breakdown	1	

		Periodic maintenance and TM Reports and Machine Manufacture's/OEM's Literature	1	
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		Operation, Main Assemblies & Troubleshooting of 3X, CSM, Duomatic & Unimat and DGS	1	
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		Operation, Main Assemblies and troubleshooting of BCM, SBCM, BRM, DTS and UTV	1	
		Operation, Main Assemblies and troubleshooting of BCM, SBCM, BRM, DTS and UTV	1	
		Operation & Main Assemblies & Trouble shooting of PQRS, TRT..	1	
		Operation & Main Assemblies & Trouble shooting of T-28, UTV and RBMV.	1	
		Operation & Main Assemblies & Trouble shooting of RGM	1	
		Working Principles of Lining including Design Mode of Working of Tamping Machines	1	
		Working Principles of Leveling including Design Mode of working of Tamping Machines	1	
5	30.5	P.Way, Establishment & Stores		4
		Constituents of Railway Track, Points & Crossings, Curves.	1	
		Maintenance of Track in Track Circuited Areas & Electrified Areas & Precautions during Machine working in Electrified Areas	1	
		Categories of Engineering Works Engineering Fixed Signals/Indicators: Temporary and Permanent; Emergency Protection of track: Single Line & Double Line, Detonators & Flare Signals.	1	
		Leave, Pass, D&AR & Conduct Rules, Indenting procedure, Issue note.	1	
6	30.6	Computer: Introduction to Automatic Guiding Computer (ALC) Hardware & Win ALC Software. DRP, CMS and CWS Working in Geometry, Measuring Run & Design Mode using ALC.	4	4
7	30.7	Technical Film Show	2	2
8	30.8	Library	2	2
9	30.9	Visit to CPOH & Track Machines Working Site	8	8
10	30.10	Introduction & Valediction	2	2
		Total	68	68

- Note:**
- 1. Eligibility: Technician Gr. I/II/III.**
 - 2. 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.**
 - 3. Practical demonstration in Model rooms shall be given along with theoretical sessions as and when required besides Practical sessions specifically earmarked for Model Rooms.**