

COURSE MODULE Course No. CE 50: Special Course on Electrical & Electronics Duration: 1Week Effective Days:06			
CM No.	Subjects wise Contents	Periods	Total Periods
50.1	Electronics:		32
	Fundamentals of Electronics, Active & Passive components, Resistor, Capacitor, Inductor; Semiconductors – Properties, Covalent Bonds, Energy Bands, Types, i.e. Intrinsic, extrinsic, P-Type, N-Type.	2	
	Diodes – Types, Construction, Working Symbol and Application of Zenor Diode, LED, Photo Diode, Opto coupler; Transistors – Construction, Description of Terminals, NPN & PNP-Transistor.	2	
	Operational Amplifier - Definition, Symbol, Function of terminals, Open loop, Close loop, +ve feed back, –ve feed back, Characteristics, Application as Buffer, Inverter, Non Inverter, Adder, Subtractor, Integrator etc. Operational Amplifier ICs and their Pindagrams.	2	
	Transducers - Definition, Principle, Classification, Types, Tamping Depth Transducer, Lining Transducer, Measuring Transducer, Function and Calibration.	2	
	Pendulum, Height Transducer, Hook Transducer, Satellite Transducer, Encoder, Function and Calibration.	2	
	Programmer Unit, Logic Plan and Multicheck PCBs.	2	
	Relay - Definition, Types, Pin diagrams & Testing.	2	
	Engine Circuit - Description, Function, Types & Troubleshooting; Z.F.Circuit - Description, Working, Safety Components, Sensors, Faults & Troubleshooting.	2	
	Power supply PCB EK813SV, EK816SV, EK851SV - Calibration, Testing & Troubleshooting.	2	
	Functional Description of Tamping Unit Control Circuit, Function and Calibration of Depth Selector.	2	
	Tamping Unit control PCB EK16V, EK132V, EK176V, EK1AP7 – Calibration, Testing and Troubleshooting.	2	
	Functional Description of Front Input Circuit, Front Input Potentiometer, Slew, Versine, General Lift etc.	2	
	Principle of Lining and Functional Description of Lining Control Circuit, Calibration of Servo Valve.	2	
	Lining PCB EK349LV, EK335LV, EK2038, EK2173, Overslew PCB EK290LV, Calibration & Troubleshooting	2	
	Principle of Leveling and Functional Description of Leveling & Lifting Control Circuit.	2	
	Leveling & Lifting PCB EK347LV, EK346LV, EK2041LV, EK2042LV, Calibration & Troubleshooting	2	
50.2	Introduction and Valediction	2	2
	Total	34	34

Note: Eligibility: SSE/SE/JE/Technicians