LESSON PLAN

Program Name	Electronics and Communication Engineering
Course Title	Electronic Equipment Maintenance
Course Code	ECPE202(I)
Semester	4th
Course Teacher Name	NEHA CHANDEL

Evaluation Scheme

Sr. No.	Subject Code	Subject	Study Scheme			Total Study Hours	Credits	Evaluation Scheme								Total Marks
								Internal Assessment			External Assessment					
			Th	Pr	DCS			Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
1	ECPE202(I)	EEM	3	-	1	4	3	40	-	40	60	3	-	-	60	100

References Books/ Study Material

1. **Modern Electronic Equipment: Trouble- shooting, Repair and Maintenance Khandpur TMH 2006 2. Electronic Instruments and Systems: Principles, Maintenance and Troubleshooting R. G. Gupta Tata McGraw Hill Edition 2001 3. Student Reference Manual for Electronic Instrumentation Laboratories David L Terrell Butterworth-Heinemann. 4. Electronic Testing and Fault Diagnosis G. C. Loveday, A. H Wheeler Publishing.**

Course Outcomes (Cos)

CO-1	Acquires skill of troubleshooting analog and digital circuits
CO-2	Gets acquainted with fault diagnosis procedure
CO-3	Familiarization of various IC Packages and logic families.

Teaching Plan

Unit No	No. of Lect. Planed	Topic to be covered	Proposed date (as per time table)	Actual Date	Remarks
1	1	Fundamental Troubleshooting Procedures Inside an Electronic Equipment:	27/1/26		
	2	Introduction	28/1/26		
	3	Reading Drawings and Diagrams – Block Diagram,	29/1/26		
	4	Circuit Diagram,	31/1/26		
	5	Wiring Diagram	3/2/26		
	6	Disassembly and re-assembly of equipment,	4/2/26		
	7	Equipment Failures and causes such as poor design, production deficiencies, careless storage and transport, inappropriate operating conditions	5/2/26		
	8	Nature of faults, Fault location procedure, Fault finding aiDCS –	7/2/26		

		Service and maintenance manuals and instruction manuals,			
	9	Test and Measuring instruments, special tools Troubleshooting techniques,	10/2/26		
	10	Approaching components for tests, Grounding systems in Electronic Equipment, Temperature sensitive	11/2/26		
	11	Intermittent problems Corrective actions, Situations where repairs should not be attempted.	12/2/26		
	12	REVISION	17/2/26		
2	13	Passive Components- Resistors, Capacitors, Inductors Failures in fixed resistors,	18/2/26		
	14	testing of resistors, variable resistors, variable resistors as potentiometers	19/2/26		
	15	failures in potentiometers, testing of potentiometers, servicing potentiometers	21/2/26		
	16	LDRs and Thermistors Types of capacitors and their performance,	24/2/26		
	17	Failures in capacitors, testing of capacitors and precautions therein,	25/2/.26		
	18	variable capacitor types,	26/2/26		
	19	Testing of inductors and inductance measurement.	28/2/26		
	20	REVISION	3/3/26		
	21	Testing of Semiconductor Devices: Types of semiconductor devices	5/3/26		
	22	Causes of failure in Semiconductor Devices	7/3/26		
	23	Types of failure	10/3/26		
3	24	Test procedures for Diodes	11/3/26		
	25	Special types of Diodes	13/3/26		
	26	Bipolar Junction Transistors	17/3/26		
	27	Field Effect Transistors	18/3/26		
	28	Thyristors	20/3/26		
	29	Operational Amplifiers	24/3/26		
	30	Fault diagnosis in Op-Amp circuits.	25/3/26		
	31	REVISION	28/3/26		
	32	REVISION	31/3/26		
	33	Logic IC families: Packages in Digital ICs	1/4/26		
	34	IC identification, IC pin-outs, Handling ICs,	2/4/26		
	35	Digital troubleshooting methoDCS – typical faults,	4/4/26		

	36	testing digital ICs with pulse generators Logic clip,	7/4/26		
	37	Logic Probe,	8/4/26		
	38	Logic Pulser,	9/4/26		
	39	Logic Current Tracer	16/4/26		
	40	Logic Comparator Special consideration for fault diagnosis in digital circuits	18/4/26		
4	41	Handling precautions for ICs sensitive to static electricity Testing flip-flops	21/4/26		
	42	Handling precautions for ICs sensitive to static electricity Testing counters	22/4/26		
	43	Handling precautions for ICs sensitive to static electricity Testing registers	23/4/26		
	44	Handling precautions for ICs sensitive to static electricity Testing multiplexers and de-multiplexers	25/4/26		
	45	Handling precautions for ICs sensitive to static electricity Testing encoders and decoderS	28/4/26		
	46	Handling precautions for ICs sensitive to static electricity Testing Tri-state logic.	29/4/26		
	47	REVISION	29/4/26		
	48	REVISION	30/4/26		
	49	Rework and repair of Surface Mount Assemblies,	30/4/26		
	50	Surface Mount Technology	2/5/26		
	51	surface mount devices	5/5/26		
	52	Surface Mount Semiconductor packages – SOIC, SOT, LCCC, LGA, BGA, COB, Flat packs and Quad Packs	6/5/26		
	53	Surface Mount Semiconductor packages – SOIC, SOT, LCCC, LGA, BGA, COB, Flat packs and Quad Packs	7/5/26		
5	54	Surface Mount Semiconductor packages – SOIC, SOT, LCCC, LGA, BGA, COB, Flat packs and Quad Packs	12/5/26		
	55	Surface Mount Semiconductor packages – SOIC, SOT, LCCC, LGA, BGA, COB, Flat packs and Quad Packs	13/5/26		
	56	Cylindrical Diode Packages	14/5/26		
	57	Packaging of Passive Components as SMDCS	16/5/26		
	58	Repairing Surface Mount PCBs	19/5/26		

	59	Rework Stations.	20/5/26		
	60	REVISION	21/5/26		
	61	REVISION	26/5/26		

Home Assignments

Ass. No	Contents of Syllabus Covered	Proposed date	Actual Date	Remarks
1	Unit-1&2	28/2/26		
2	Unit-3&4	1/4/26		
3	Unit-5	5/5/.26		

Class /House Test

Name of Test	Syllabus Covered in Tests (Unit/Chapter Wise)	Proposed date	Actual Date	Remarks
Class Test-I	Unit-1&2	As per HPTSB Academic Calendar Schedule		
Class Test-II	Unit-3& 4			
House Test	80% of whole syllabus			

Signature of Course Teacher with Name
(NEHA CHANDEL)

Approved by

OIC/HoD/Principal