ChristuJyoti Institute of Technology & Science

(Approved by AICTE, Permanent Affiliated to JNTU Hyderabad)
Colombo Nagar, Yeshwanthapur, Jangaon,TS-506 167

Department of Electronics & Communication engineering

Lesson Plan

Program Name:	B. Tech in ECE	**AY**	2022-23
Course Name:	Radar Systems	**Class / Sem**	IV/II-Sem
Faculty Name:	R.RAMESH	**Regulation**	R-18

S.No	Lecture No.	Unit	Topic	Teaching Aid/Methadology	Text/Ref
1	1	I	Introduction	TM1	T1/R1
2	2		maximum unambiguous range	TM1	T1/R1
3	3		Radar BlockDiagramand Operation,	TM2	T1/R1
4	4		Radar Frequencies and Applications.	TM5	T1/R1
5	5		Prediction of Range Performance	TM5	T1/R1
6	6		MinimumDetectableSignal	TM1	T1/R1
7	7		ReceiverNoise	TM1	T1/R1
8	8		ModifiedRadarRangeEquation	TM1	T1/R1
9	9		SNR, Envelope Detector	TM2	T1/R1
10	10		False Alarm Time and Probability	TM1	T1/R1
11	11		Integration of RadarPulses, , ,	TM13	T1/R1
12	12		Radar Cross Section of Targets,	TM2	T1/R1
13	13		Transmitter Power	TM1	T1/R1
14	14		PRF and Range Ambiguities	TM1	T1/R1
15	15		SystemLosses	TM9	T1/R1
16	16		**Slip Test-I**		
17	17	II	Introduction	TM1	T1/R1
18	18		DopplerEffect,	TM1	T1/R1
19	19		CWRadar–BlockDiagram	TM1	T1/R1
20	20		IsolationbetweenTransmitter and Receiver	TM5	T1/R1
21	21		Non-zero IF Receiver	TM1	T1/R1
22	22		Receiver Bandwidth Requirements	TM1	T1/R1
23	23		Applications ofCWradar.	TM13	T1/R1
24	24		RangeandDopplerMeasurement	TM2	T1/R1
25	25		Block diagram andCharacteristics,	TM9	T1/R1
26	26		FM-CWaltimeter.	TM9	T1/R1
27	27		**Slip Test-II**		T1/R1/R2
28	28	III	Introduction	TM1	T1/R1/R2
29	29		MTI and Pulse Doppler Radar Principle	TM1	T1/R1/R2
30	30		Radar - Power Amplifier Transmitter	TM1	T1/R1/R2
31	31		PowerOscillatorTransmitter	TM1	T1/R1/R2

32	32		DelayLineCancellers, FilterCharacteristics	TM5	T1/R1/R2
33	33		BlindSpeeds,DoubleCancellation	TM1	T1/R1/R2
34	34		Staggered PRFs	TM13	T1/R1/R2
35	35		Range Gated Doppler Filters	TM1	T1/R1/R2
36	36		Limitations toMTIPerformance	TM2	T1/R1/R2
37	37		MTIversusPulse DopplerRadar	TM1	T1/R1/R2
38	38		**Slip Test-III**		T1/R1/R2
39	39	IV	Introduction	TM1	T1/R1/R2
40	40		TrackingwithRadar	TM1	T1/R1/R2
41	41		Sequential Lubing ConicalScan,	TM1	T1/R1/R2
42	42		MonopulseTrackingRadar	TM1	T1/R1/R2
43	43		Amplitude Comparison Mono pulse	TM5	T1/R1/R2
44	44		Amplitude Comparison Mono pulse	TM9	T1/R1/R2
45	45		Phase Comparison Mono pulse	TM2	T1/R1/R2
46	46		TrackinginRange	TM1	T1/R1/R2
47	47		Acquisitionand ScanningPatterns	TM1	T1/R1/R2
48	48		Comparison ofTrackers	TM1	T1/R1/R2
49	49		**Slip Test-IV**		T1/R1/R2
50	50	V	Introduction	TM1	T1/R1/R2
51	51		Matched Filter Receiver	TM1	T1/R1/R2
52	52		Response Characteristics andDerivation	TM1	T1/R1/R2
53	53		Correlation Function	TM1	T1/R1/R2
54	54		Cross-correlation Receiver	TM1	T1/R1/R2
55	55		Efficiency of Non-matched Filters.	TM13	T1/R1/R2
56	56		MatchedFilterwith Non-white Noise	TM1	T1/R1/R2
57	57		Noise Figure and Noise Temperature	TM1	T1/R1/R2
58	58		Displays – types	TM2	T1R1/R2
59	59		Duplexers – Branch type	TM2	T1/R1/R2
60	60		Duplexers –Balancedtype	TM1	T1/R1/R2
61	61		CirculatorsasDuplexers	TM5	T1/R1/R2
62	62		IntroductiontoPhasedArrayAntennas	TM5	T1/R1/R2
63	63		BasicConcepts,RadiationPattern	TM5	T1/R1/R2
64	64		BeamSteering	TM5	T1/R1/R2
65	65		BeamWidthchanges, Applications	TM9	T1/R1/R2
66	66		AdvantagesandLimitations	TM9	T1/R1/R2
			Slip Test-V		

S. No	Text Book	Book Name
1.	T1	Introductionto RadarSystems–MerrillI.Skolnik,TMHSpecial IndianEdition,2nd Ed.,2007
2.	R1	Radar:Principles, Technology, Applications– ByronEdde,PearsonEducation, 2004.
3.	R2	PrinciplesofModernRadar:BasicPrinciples– MarkA.Richards,JamesA.Scheer,William A.Holm,Yesdee,2013

Teaching methods			
TM1	Chalk and Board	TM7	Debate
TM2	Power point Presentation	TM8	Quiz
TM3	Video Lecture	TM9	NPTEL Videos
TM4	Discussion	TM10	Problem Solving
TM5	Seminar	TM11	Lab Experiment
TM6	Guest Lecture	TM12	Web references
		TM13	Think share