**LESSON PLAN**

**Subject Code & Name*: Radar Systems*** **Branch: *E.C.E***

**Class / Semester:*IV B.Tech I Semester* Academic Year: *2015-2016***

|  |  |  |  |  |  |  |
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| **Period** | **Date (Tentative)** | **Topic** | **Unit No.** | **Teaching Methodology** | **Remarks** | **Corrective action upon review** |
|  |  | **Unit-1** |  |  |  |  |
| **1** | **14.07.2015** | **Introduction to RADAR Maximum Unambigous Range** | **1** | **BB** |  |  |
| **2** | **14.07.2015** | **RADAR Wave form, Radar Block Diagram** | **1** | **BB** |  |  |
| **3** | **16.07.2015** | **RADAR Equaiton, Operation** | **1** | **BB** |  |  |
| **4** | **17.07.2015** | **RADAR Frequencies, Radar Applications** | **1** | **BB** |  |  |
| **5** | **21.07.2015** | **Related Problems** | **1** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 2** |  |  |  |  |
| **6** | **21.07.2015** | **Prediction of Range, Minimum Detectable** | **2** | **BB** |  |  |
| **7** | **23.07.2015** | **Receiver Noise & SNR, Integration of Radar Pulses** | **2** | **BB** |  |  |
| **8** | **24.07.2015** | **Radar Cross Section of Tragets (Sphere, Cone)** | **2** | **BB** |  |  |
| **9** | **28.07.2015** | **Transmitter Power PRF** | **2** | **BB** |  |  |
| **10** | **28.07.2015** | **Range Ambiguities** | **2** | **BB** |  |  |
| **1** | **30.07.2015** | **System Losses** | **2** | **BB** |  |  |
| **12** | **31.07.2015** | **Related Problems** | **2** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit-3** |  |  |  |  |
| **13** | **04.08.2015** | **CW & FM Radar, Doppler Effect** | **3** | **BB** |  |  |
|  |  |  | **3** | **BB** |  |  |
|  |  |  | **3** | **BB** |  |  |
| **16** | **04.08.2015** | **Applications of CW Radar** | **3** | **BB** |  |  |
| **17** | **11.08.2015** | **FM-CW Radar** | **3** | **BB** |  |  |
| **18** | **11.08.2015** | **Range and Doppler Measurement** | **3** | **BB** |  |  |
| **19** | **13.08.2015** | **Block Diagram & Characteristics** | **3** | **BB** |  |  |
| **20** | **14.08.2015** | **FM-CW Altimeter** | **3** | **BB** |  |  |
| **21** | **18.08.2015** | **Measurement Errors** | **3** | **BB** |  |  |
| **22** | **18.08.2015** | **Multiple Frequency CW Radar** | **3** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 4** |  |  |  |  |
| **23** | **20.08.2015** | **Introduction, Principle, MTI Radar** | **4** | **BB** |  |  |
| **24** | **21.08.2015** | **Power Amplifier TX Power Oscillator TX** | **4** | **BB** |  |  |
| **25** | **25.08.2015** | **Delay Line Cancellers, Filter Charcteristics** | **4** | **BB** |  |  |
| **26** | **25.08.2015** | **Blind Speeds, Double Cancellation** | **4** | **BB** |  |  |
| **27** | **27.08.2015** | **Staggered PRF’s, Range Gated Doppler Filters** | **4** | **BB** |  |  |
| **28** | **28.08.2015** | **MTI Radar Parameters** | **4** | **BB** |  |  |
| **29** | **01.09.2015** | **Limitations to MTI Performance** | **4** | **BB** |  |  |
| **30** | **01.09.2015** | **Non-Coherent MTI** | **4** | **BB** |  |  |
| **31** | **03.09.2015** | **MTI Versus Pulse Doppler Radar** | **4** | **BB** |  |  |
| **32** | **04.09.2015** | **Problems** | **4** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 5** |  |  |  |  |
| **33** | **08.09.2015** | **Introduction to Tracing RADAR** | **5** | **BB** |  |  |
| **34** | **08.09.2015** | **Tracking with RADAR** | **5** | **BB** |  |  |
| **35** | **10.09.2015** | **Sequential Lobing, Conical Scan** | **5** | **BB** |  |  |
| **36** | **11.09.2015** | **Monopulse Tracking RADAR, Amplitude Comparison** | **5** | **BB** |  |  |
| **37** | **15.09.2015** | **Target Reflection Characterisitcs** | **5** | **BB** |  |  |
| **38** | **15.09.2015** | **Angular Accuracy** | **5** | **BB** |  |  |
| **39** | **17.09.2015** | **Tracking Range, Acquizition** | **5** | **BB** |  |  |
| **40** | **18.09.2015** | **Scanning Pattersns, Comparison of Trackers** | **5** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit-6** | **6** | **BB** |  |  |
| **41** | **22.09.2015** | **Introduction to Radar Antennas** | **6** | **BB** |  |  |
| **42** | **22.09.2015** | **Antenna Parameters Reflector Antennas** | **6** | **BB** |  |  |
| **43** | **24.09.2015** | **LENS Antennas, Cosecant Squared Antenna** | **6** | **BB** |  |  |
| **44** | **25.09.2015** | **Radomes, Electronicaly Steered Phased Array Antennas** | **6** | **BB** |  |  |
| **45** | **29.09.2015** | **Phase Shifters** | **6** | **BB** |  |  |
| **46** | **29.09.2015** | **Frequency Scan Arrays** | **6** | **BB** |  |  |
| **47** | **01.10.2015** | **Radiators for phase Arrays** | **6** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 7** | **7** | **BB** |  |  |
| **49** | **06.10.2015** | **Introduction to Detection of Radar Signals in noise** | **7** | **BB** |  |  |
| **50** | **06.10.2015** | **Matched Filter RX** | **7** | **BB** |  |  |
| **51** | **08.10.2015** | **Response, Characteristics and Derivation** | **7** | **BB** |  |  |
| **52** | **09.10.2015** | **Correlation Detection** | **7** | **BB** |  |  |
| **53** | **13.10.2015** | **Detection Criteria** | **7** | **BB** |  |  |
| **54** | **13.10.2015** | **Detector Characteristics, Automatic Detection** | **7** | **BB** |  |  |
| **55** | **15.10.2015** | **Constant False Alarm Rate Receiver** | **7** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 8** | **8** | **BB** |  |  |
| **56** | **16.10.2015** | **Introduction to Radar Receivers** | **8** | **BB** |  |  |
| **57** | **20.10.2015** | **Noise Figures, Noise Temperature** | **8** | **BB** |  |  |
| **58** | **20.10.2015** | **Displays – Types Duplexers, Branch Type** | **8** | **BB** |  |  |
| **59** | **22.10.2015** | **Balanced Type** | **8** | **BB** |  |  |
| **60** | **23.10.2015** | **Circulators Duplexers** | **8** | **BB** |  |  |
| **61** | **27.10.2015** | **Introduction to Phased – Array Antennas** | **8** | **BB** |  |  |
| **62** | **27.10.2015** | **Basic Concepts** | **8** | **BB** |  |  |
| **63** | **29.10.2015** | **Radiation Pattern Beam Steering** | **8** | **BB** |  |  |
| **64** | **01.10.2015** | **Beam Width Changes Series, Parallel Feeds** | **8** | **BB** |  |  |
| **65** | **01.10.2015** | **Applications, Advantages, Disadvantages, Limitations** | **8** | **BB** |  |  |
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**Faculty Name: Smt.R.Kranthi (B-Section)**

**CR: CLASS ROOM OHP: OVERHEAD PROJECTOR BB:BLACK BOARD LCD**