**LESSON PLAN**

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

**Class / Semester:*IVB.Tech I Semester* Academic Year: *2013-2014***

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| **Period** | **Date (Tentative)** | **Topic** | **Unit No.** | **Teaching Methodology** | **Remarks** | **Corrective action upon review** |
|  |  | **Unit-1** |  |  |  |  |
| **1** | 10.6.13 | **Introduction to RADAR Maximum Unambigous Range** | **1** | **BB** |  |  |
| **2** | 12.6.13 | **RADAR Wave form, Radar Block Diagram** | **1** | **BB** |  |  |
| **3** | 17.6.13 | **RADAR Equaiton, Operation** | **1** | **BB** |  |  |
| **4** | 19.6.13 | **RADAR Frequencies, Radar Applications** | **1** | **BB** |  |  |
| **5** | 20.6.13 | **Related Problems** | **1** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 2** |  |  |  |  |
| **6** | 22.6.13 | **Prediction of Range, Minimum Detectable** | **2** | **BB** |  |  |
| **7** | 26.6.13 | **Receiver Noise & SNR, Integration of Radar Pulses** | **2** | **BB** |  |  |
| **8** | 28.6.13 | **Radar Cross Section of Tragets (Sphere, Cone)** | **2** | **BB** |  |  |
| **9** | 3.7.13 | **Transmitter Power PRF** | **2** | **BB** |  |  |
| **10** | 4.7.13 | **Range Ambiguities** | **2** | **BB** |  |  |
| **1** | 5.7.13 | **System Losses** | **2** | **BB** |  |  |
| **12** | 6.7.13 | **Related Problems** | **2** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit-3** |  |  |  |  |
| **13** | 6.7.13 | **CW & FM Radar, Doppler Effect** | **3** | **BB** |  |  |
|  | 11.7.13 |  | **3** | **BB** |  |  |
|  | 11.7.13 |  | **3** | **BB** |  |  |
| **16** | 12.7.13 | **Applications of CW Radar** | **3** | **BB** |  |  |
| **17** | 18.7.13 | **FM-CW Radar** | **3** | **BB** |  |  |
| **18** | 19.7.13 | **Range and Doppler Measurement** | **3** | **BB** |  |  |
| **19** | 20.7.13 | **Block Diagram & Characteristics** | **3** | **BB** |  |  |
| **20** | 21.7 | **FM-CW Altimeter** | **3** | **BB** |  |  |
| **21** | 1.8.13 | **Measurement Errors** | **3** | **BB** |  |  |
| **22** | 1.8.13 | **Multiple Frequency CW Radar** | **3** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 4** |  |  |  |  |
| **23** | 28.8.13 | **Introduction, Principle, MTI Radar** | **4** | **BB** |  |  |
| **24** | 11.9.13 | **Power Amplifier TX Power Oscillator TX** | **4** | **BB** |  |  |
| **25** | 12.9.13 | **Delay Line Cancellers, Filter Charcteristics** | **4** | **BB** |  |  |
| **26** | 18.9.13 | **Blind Speeds, Double Cancellation** | **4** | **BB** |  |  |
| **27** | 21.9.13 | **Staggered PRF’s, Range Gated Doppler Filters** | **4** | **BB** |  |  |
| **28** | 3.10.13 | **MTI Radar Parameters** | **4** | **BB** |  |  |
| **29** | 17.10.13 | **Limitations to MTI Performance** | **4** | **BB** |  |  |
| **30** | 17.10.13 | **Non-Coherent MTI** | **4** | **BB** |  |  |
| **31** | 18.10.13 | **MTI Versus Pulse Doppler Radar** | **4** | **BB** |  |  |
| **32** | 19.10.13 | **Problems** | **4** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 5** |  |  |  |  |
| **33** | 22.10.13 | **Introduction to Tracing RADAR** | **5** | **BB** |  |  |
| **34** | 28.10.13 | **Tracking with RADAR** | **5** | **BB** |  |  |
| **35** | 30.10.13 | **Sequential Lobing, Conical Scan** | **5** | **BB** |  |  |
| **36** | 31.10.13 | **Monopulse Tracking RADAR, Amplitude Comparison** | **5** | **BB** |  |  |
| **37** | 2.11.13 | **Target Reflection Characterisitcs** | **5** | **BB** |  |  |
| **38** | 7.11.13 | **Angular Accuracy** | **5** | **BB** |  |  |
| **39** | 8.11.13 | **Tracking Range, Acquizition** | **5** | **BB** |  |  |
| **40** | 8.11.13 | **Scanning Pattersns, Comparison of Trackers** | **5** | **BB** |  |  |
|  | 9.11.13 |  |  |  |  |  |
|  |  | **Unit-6** | **6** | **BB** |  |  |
| **41** | 9.11.13 | **Introduction to Radar Antennas** | **6** | **BB** |  |  |
| **42** | 13.11.13 | **Antenna Parameters Reflector Antennas** | **6** | **BB** |  |  |
| **43** | 13.11.13 | **LENS Antennas, Cosecant Squared Antenna** | **6** | **BB** |  |  |
| **44** | 15.11.13 | **Radomes, Electronicaly Steered Phased Array Antennas** | **6** | **BB** |  |  |
| **45** | 15.11.13 | **Phase Shifters** | **6** | **BB** |  |  |
| **46** | 20.11.14 | **Frequency Scan Arrays** | **6** | **BB** |  |  |
| **47** | 20.11.14 | **Radiators for phase Arrays** | **6** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 7** | **7** | **BB** |  |  |
| **49** | 21.11.14 | **Introduction to Detection of Radar Signals in noise** | **7** | **BB** |  |  |
| **50** | 21.11.14 | **Matched Filter RX** | **7** | **BB** |  |  |
| **51** | 22.11.14 | **Response, Characteristics and Derivation** | **7** | **BB** |  |  |
| **52** | 22.11.14 | **Correlation Detection** | **7** | **BB** |  |  |
| **53** | 23.11.14 | **Detection Criteria** | **7** | **BB** |  |  |
| **54** | 23.11.14 | **Detector Characteristics, Automatic Detection** | **7** | **BB** |  |  |
| **55** | 24.11.14 | **Constant False Alarm Rate Receiver** | **7** | **BB** |  |  |
|  |  |  |  |  |  |  |
|  |  | **Unit - 8** | **8** | **BB** |  |  |
| **56** | 27.11.14 | **Introduction to Radar Receivers** | **8** | **BB** |  |  |
| **57** | 28.11.14 | **Noise Figures, Noise Temperature** | **8** | **BB** |  |  |
| **58** | 28.11.15 | **Displays – Types Duplexers, Branch Type** | **8** | **BB** |  |  |
| **59** | 29.11.14 | **Balanced Type** | **8** | **BB** |  |  |
| **60** | 29.11.14 | **Circulators Duplexers** | **8** | **BB** |  |  |
| **61** | 30.11.14 | **Introduction to Phased – Array Antennas** | **8** | **BB** |  |  |
| **62** | 30.11.14 | **Basic Concepts** | **8** | **BB** |  |  |
| **63** | 1.12.14 | **Radiation Pattern Beam Steering** | **8** | **BB** |  |  |
| **64** | 2.12.14 | **Beam Width Changes Series, Parallel Feeds** | **8** | **BB** |  |  |
| **65** | 2.12.14 | **Applications, Advantages, Disadvantages, Limitations** | **8** | **BB** |  |  |
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