**Lesson Plan**

**Name of faculty: SUNIL KUMAR DAHIYA, AP-ECE**

**Discipline: ECE**

**Semester: 8th Sem**

**Subject: RADAR ENGINEERING (ECE-422N)**

Lesson Plan Duration: 15 weeks (from January 2020 to May 2020)

Work Load (Lecture) per week (in hours): Lectures: 03 hours.

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| **Week** | **Theory (ECE-422N)** | |
|  | **Lecture day** | **Topic (Including assignment/ test)** |
| 1st |  | Introduction to Subject |
|  | Radar Block Diagram & operation |
|  | Applications of Radar |
| 2nd |  | Simple form of Radar Equation |
|  | Detection of signals in noise |
|  | Signal to Noise ratio |
| 3rd |  | Transmitter Power. |
|  | Pulse repetition frequency & range ambiguities |
|  | System losses |
| 4th |  | System losses |
|  | Propagation effects |
|  | Propagation effects |
| 5th |  | The Doppler effect |
|  | CW Radar |
|  | FM- CW Radar |
| 6th |  | Multiple Frequency CW Radar |
|  | Introduction, Delay Line Cancellors |
|  | Introduction, Delay Line Cancellors |
| 7th |  | Introduction, Delay Line Cancellors |
|  | Multiple or staggered Pulse repetition frequencies |
|  | Multiple or staggered Pulse repetition frequencies |
| 8th |  | range-Gated Doppler Filters |
|  | Limitation of MTI performance |
|  | Noncoherent MTI |
| 9th |  | Pulse Doppler radar |
|  | MTI from a moving platform |
|  | range-Gated Doppler Filters |
| 10th |  | range-Gated Doppler Filters |
|  | Limitation of MTI performance |
|  | Tracking with Radar |
| 11th |  | Sequential Lobbing |
|  | Conical Scan |
|  | Mono pulse Tracking Radar |
| 12th |  | Tracking in range |
|  | Acquisition |
|  | Low angle tracking |
| 13th |  | Radar Receivers |
|  | Radar Receivers |
|  | Noise Figure |
| 14th |  | Mixer Low-noise Front ends |
|  | Mixer Low-noise Front ends |
|  | Displays |
| 15th |  | Duplexer |
|  | Duplexer |
|  | Receiver protectors |