**Lesson Plan**

**Name of faculty: ASHOK KUMAR, AP-ECE**

**Discipline: MECH**

**Semester: 2nd**

**Subject: BASICS OF ELECTRONICS ENGG.**

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load(Lecture/Practical) per week (in hours): Lectures: 03 hours, Tutorials:02hours

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| **Week** | **Theory** | **Practical** |
|  | **Lecture day** | **Topic(Including assignment/ test)** | **Practical day** | **Topic** |
| 1st |  | Active Components (Current & Voltage Sources) | 1 |  |
|  | Passive Electronic components (Resistors, Capacitors & Inductors) |  |  |
|  | concept of P-N diode, Diode Equivalent Circuits |  |  |
| 2nd |  | Load Line Analysis, Diode as a Switch | 2 |  |
|  | Breakdown Mechanisms, Zener Diode: Operation and Applications |  |  |
|  | Rectifiers: Half Wave |  |  |
| 3rd |  | Full Wave Rectifiers | 3 |  |
|  | Photo Diode and Applications |  |  |
|  | LED |  |  |
| 4th |  | Different Types of Transistors, basic operation of a transistor | 4 |  |
|  | Amplifying Action of BJT |  |  |
|  | Input and Output Characteristics of Common Base (CB) |  |  |
| 5th |  | Common Collector (CC) and Common Emitter (CE) Configurations | 5 |  |
|  | Operating Point, Transistor as a switch |  |  |
|  | Transistor as a switch and amplifier |  |  |
| 6th |  | Biasing: Fixed Bias | 6 |  |
|  | Biasing: Fixed Bias, Self-Bias |  |  |
|  | Voltage Divider Bias |  |  |
| 7th |  | Concept of Feedback in amplifiers | 7 |  |
|  | Advantages of negative feedback |  |  |
|  | Oscillators: Barkhausen criterion for oscillations |  |  |
| 8th |  | Operational Amplifier: Basic Block Diagram | 8 |  |
|  | Equivalent Circuit, Characteristics of Ideal Op-Amp |  |  |
|  | Concept of Virtual Short, Ideal Op-Amp vs Practical Op-Amp |  |  |
| 9th |  | Configurations of Op-Amp: Inverting, Non-Inverting | 9 |  |
|  | Configurations of Op-Amp:Differential |  |  |
|  | Parameters of Op-Amp: Bandwidth, Slew Rate, Gain, CMRR, PSRR,  |  |  |
| 10th |  | Parameters of Op-Amp: Input offset voltage | 10 |  |
|  | Output offset voltage |  |  |
|  | Op-Amp Applications: Summing and Difference Amplifiers |  |  |
| 11th |  | Integrator | 11 |  |
|  | Integrator |  |  |
|  | Operation and I-V Characteristics of enhancement MOSFET |  |  |
| 12th |  | Operation and I-V Characteristics of depletion MOSFET | 12 |  |
|  | concept of n-MOSFET |  |  |
|  | p-MOSFET |  |  |
| 13th |  | C-MOSFET | 13 |  |
|  | DIAC: Characteristics |  |  |
|  | DIAC: Operation and Applications |  |  |
| 14th |  | UJT: Characteristics |  |  |
|  | UJT: Operation&Applications |  |  |
|  | SCR: Characteristics |  |  |
| 15th |  | SCR: Operation and Applications |  |  |
|  | TRIAC: Characteristics |  |  |
|  | TRIAC: Operation and Applications |  |  |