

GURU TEGH BAHADUR INSTITUTE OF TECHNOLOGY

(G-8 Area Rajouri Garden New Delhi – 110064)

LECTURE PLAN FOR ANALOG ELECTRONICS

| S.NO. | TOPIC TO BE COVERED | No. of lecturers allotted |
|--------------|--|----------------------------------|
| 1- | Introduction, general characteristics, energy levels | 2 |
| 2- | Extrinsic materials n & p type ,Ideal diode ,basic construction & characteristics DC &AC resistance. | 3 |
| 3- | Equivalent circuit, drift & diffusion currents, transition & diffusion capacitance, Reverse recovery times, temperatures effect, diode specifications, clipper, clampers | 3 |
| 4- | Different types of diodes , zener, varactor, schottky, power, tunnel, photodiode & LED, Switch mode power supply. | 3 |
| 5- | Half wave rectifier & full wave rectifier, bridge rectifier | 2 |
| | BIPOLAR JUNCTION TRANSISTOR | |
| 6- | Introduction ,construction,B.J.T operation | 2 |
| 7- | B.J.T characteristics ,load line ,operating point ,leakage currents saturation & cut off mode of operations, Ebers molls model | 3 |
| | 2nd Term | |
| | BIAS STABLIZATION | |
| 8- | Need for stabilization, fixed bias, self bias ,emitter bias | 3 |
| 9- | Bias stability with respect of variation in I_{co} , V_{be} ,B, stablisation factor& thermal stability. | 3 |
| | SMALL SIGNAL AMPLIFIERS | |
| 10- | Analysis of (CB,CE,CC) | 2 |
| 11- | Hybrid modle for transistor at low frequency, RC coupled amp, Mid band model, gain and impedance. | 2 |
| 12- | Comparisons of different configurations, Darlington pair | 2 |
| | MULTISTAGE AMPLIFIER | |
| 13- | Cascaded amplifiers, Calculations of gain impedance and bandwidth, design of multistage amplifiers. | 3 |
| | 3rd Term | |
| | FEEDBACK AMLIFIERS | |
| 14 | Feedback concepts, classification of feedback amplifiers, properties of negative feedback amplifiers, impedance | 2 |

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| | consideration in different configurations, examples of analysis of feedback amplifiers. | |
| | FIELD EFFECT TRANSISTORS | |
| 15 | Introduction to FET, classification and characteristics, operating point, biasing | 2 |
| 16 | Depletion and enhancement MOSFETS | 1 |

Lecturer :

AMRISH KUMAR