

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2016–17

Class: II B Tech

Branch-Section: ECE- B

Semester: I

Subject: Electronic Devices And Circuits

Lectures per week: 4+1 (Tutorial)

| Lecture Number | Topics to be covered | Date (s) |
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| UNIT – I: P-N Junction Diode | | |
| 1 | Introduction to Semiconductor materials | 13 June 2016 |
| 2 | Qualitative Theory of p-n junction diode | 15 June 2016 |
| 3 | P-N junction as a diode | 17 June 2016 |
| 4 | Diode equation | 18 June 2016 |
| 5 | Tutorial (G3,G1,G2) - Problems related to Diodes | 15, 17, 18 June 2016 |
| 6 | V-I characteristics, temperature dependence of V-I characteristics | 20 June 2016 |
| 7 | Ideal versus Practical resistance levels (static and dynamic) | 22 June 2016 |
| 8 | Diffusion Capacitance | 24 June 2016 |
| 9 | Transition Capacitance | 25 June 2016 |
| 10 | Tutorial (G3,G1,G2) - Problems related to Resistances | 22, 24, 25 June 2016 |
| 11 | Diode equivalent circuits | 27 June 2016 |
| 12 | Load line analysis | 29 June 2016 |
| 13 | Breakdown mechanisms in semiconductor diodes | 1 July 2016 |
| 14 | Zener diode Characteristics | 2 July 2016 |
| 15 | Tutorial (G3,G1,G2) - Problems related to Diode Equation | 29 June, 1, 2 July 2016 |
| 16 | Special purpose electronic devices, Varactor diode, photo diode | 4 July 2016 |
| 17 | SCR Characteristics | 8 July 2016 |
| 18 | Tunnel diode characteristics | 9 July 2016 |
| 19 | Tutorial (G3,G1,G2) - Problems related to Diode Equation | 4, 8, 9 July 2016 |
| UNIT-II: Rectifiers And Filters | | |
| 20 | P-N junction as a Rectifier | 11 July 2016 |
| 21 | Half wave rectifier | 13 July 2016 |
| 22 | Full wave rectifier (center tapped), Full wave rectifier (bridge) | 15 July 2016 |
| 23 | Harmonic components in a Rectifier Circuit | 16 July 2016 |
| 24 | Tutorial (G3,G1,G2) - Problems related to Half wave Rectifiers | 13, 15, 16 July 2016 |
| 25 | Inductor Filters, Capacitor Filters | 18 July 2016 |
| 26 | L section Filters, π section Filters | 20 July 2016 |
| 27 | Comparison of Rectifiers, Filters | 22 July 2016 |
| 28 | Voltage regulation using zener diode | 23 July 2016 |
| 29 | Tutorial (G3,G1,G2) - Problems related to Rectifiers | 20, 22, 23 July 2016 |
| UNIT-III: Bipolar Junction Transistor (BJT) and UJT | | |
| 30 | Basic concepts of Junction Transistor | 25 July 2016 |
| 31 | Transistor Currents components | 27 July 2016 |
| 32 | BJT construction, BJT operation, Symbol | 29 July 2016 |
| 33 | Transistor as an Amplifier | 30 July 2016 |
| 34 | Tutorial (G3,G1,G2) - Problems related to zener voltage regulator | 27, 29, 30 July 2016 |
| 35 | CB configuration characteristics | 3 August 2016 |
| 36 | CE configuration characteristics | 5 August 2016 |
| 37 | CC configuration characteristics | 6 August 2016 |
| 38 | Tutorial (G3, G1, G2) - Problems related to Transistor configurations | 3, 5, 6 August 2016 |
| 39 | BJT Specifications and BJT Hybrid Model | 17 August 2016 |
| 40 | Determination of h-parameters from Transistor Characteristics | 19 August 2016 |
| 41 | CB Amplifier analysis using h-parameters | 20 August 2016 |
| 42 | Tutorial (G3,G1,G2) - Problems related to h – parameter analysis | 17, 19, 20 August 2016 |
| 43 | CB input output resistance using h model | 22 August 2016 |

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| 44 | CE Amplifier analysis using h-parameters | 24 August 2016 |
| 45 | CC Amplifier analysis using h-parameters | 26 August 2016 |
| 46 | Comparison of CE,CB,CC Amplifier Configurations | 27 August 2016 |
| 47 | Tutorial (G3, G1, G2) - Problems related to h – parameter analysis | 24, 26, 27 August 2016 |
| 48 | UJT Characteristics | 29 August 2016 |
| UNIT-IV: Transistor Biasing & Stabilization | | |
| 49 | Operating Point, The DC & AC load line analysis | 31 August 2016 |
| 50 | Need for biasing, Biasing types | 2 September 2016 |
| 51 | Fixed Biasing | 3 September 2016 |
| 52 | Tutorial (G3, G1, G2) - Problems related to Biasing Techniques | 31 August, 2, 3 September 2016 |
| 53 | Emitter Feedback Bias | 3 September 2016 |
| 54 | Collector - Emitter Feedback Bias | 7 September 2016 |
| 55 | Voltage Divider Bias | 9 September 2016 |
| 56 | Bias Stability, Stabilization Factors | 10 September 2016 |
| 57 | Tutorial (G3, G1, G2) - Problems related to Biasing | 7, 9, 10 September 2016 |
| 58 | Stabilization against variations in V_{BE} and β | 14 September 2016 |
| 59 | Bias compensation using Diodes and Transistors | 16 September 2016 |
| 60 | Thermal Runaway, Thermal Stability | 17 September 2016 |
| 61 | Tutorial (G3, G1, G2) - Problems related to Stabilization | 14, 16, 17 September 2016 |
| 62 | Analysis of a Transistor Amplifier Circuit using h-parameters | 19 September 2016 |
| UNIT-V: Field Effect Transistor and FET Amplifiers | | |
| 63 | The Junction Field Effect Transistor (JFET) | 21 September 2016 |
| 64 | JFET Construction, Principle of operation and symbol | 23 September 2016 |
| 65 | Pinch-off voltage, V-I characteristics | 24 September 2016 |
| 66 | Tutorial (G3, G1, G1) - Problems related to Stabilization | 21, 23, 24 September 2016 |
| 67 | JFET Small Signal Model, MOSFET Construction, Principle of operation and symbol | 26 September 2016 |
| 68 | MOSFET Characteristics in Enhancement Mode, MOSFET Characteristics in Depletion Mode | 28 September 2016 |
| 69 | FET Amplifiers, FET Common Source Amplifier | 1 October 2016 |
| 70 | Tutorial (G3, G2) - Problems related to Stabilization | 28 September, 1 October 2016 |
| 71 | FET Common Drain Amplifier, Generalized FET Amplifier | 3 October 2016 |
| 72 | Biasing of FET, FET as a variable resistor | 28 October 2016 |
| 73 | Comparison of BJT and FET | 29 October 2016 |
| 74 | Tutorial (G1, G2) - Problems related to Stabilization | 28, 29 October 2016 |
| 75 | Revision | 2 November 2016 |
| 76 | Discussion of previous question papers | 2 November 2016 |

Text books:

1. J. Millman, C.C.Halkias, "Electronic Devices and Circuits", 2/e, TMH, 1998.
2. Mohammad Rashid, "Electronic Devices and Circuits", Cengage Learning, 2013.
3. David A. Bell, "Electronic Devices and Circuits", 5/e, Oxford.
4. K Lal Kishore, " Electronic Devices and Circuits ", 2/e, B.S Publications, 2005.

Name and signature of the faculty: Asma Begum ----

Name and signature of Head of the Department: Ms N Shribala ----