

# C.V. RAMAN POLYTECHNIC BBSR

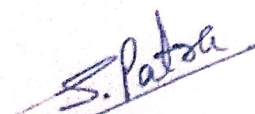


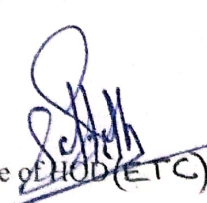
## LESSON PLAN

|                                                           |                                                                                          |                                                                                                |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Discipline: Diploma</b><br><b>Branch: ETC</b>          | <b>Semester: 3<sup>rd</sup></b>                                                          | <b>Name of the Teaching Faculty: Sabyasachi Patra</b>                                          |
| <b>Subject: Electronics-Devices</b><br><b>(ETCPC 203)</b> | <b>No. of Days/per week class</b><br><b>allotted: 45days/</b><br><b>3 class per week</b> | <b>Semester From Date: 14/07/2025 To</b><br><b>Date: 15/11/2025</b><br><b>No. of Weeks: 15</b> |
| <b>Week</b>                                               | <b>Class Day</b>                                                                         | <b>Theory</b>                                                                                  |
| 1 <sup>st</sup>                                           | 1 <sup>st</sup>                                                                          | 1.1 Review of Quantum Mechanics                                                                |
|                                                           | 2 <sup>nd</sup>                                                                          | 1.2 Electrons in Periodic Lattices                                                             |
|                                                           | 3 <sup>rd</sup>                                                                          | 1.3 Energy Bands in Intrinsic & Extrinsic Si                                                   |
| 2 <sup>nd</sup>                                           | 1 <sup>st</sup>                                                                          | 1.4.1 Diffusion Current                                                                        |
|                                                           | 2 <sup>nd</sup>                                                                          | 1.4.2 Drift Current                                                                            |
|                                                           | 3 <sup>rd</sup>                                                                          | 1.4.3 Mobility and Resistivity                                                                 |
| 3 <sup>rd</sup>                                           | 1 <sup>st</sup>                                                                          | 2.1 Generation and Recombination                                                               |
|                                                           | 2 <sup>nd</sup>                                                                          | 2.2 Poisson and Continuity Equations                                                           |
|                                                           | 3 <sup>rd</sup>                                                                          | 2.3.1 Construction of P-N Junction Diode                                                       |
| 4 <sup>th</sup>                                           | 1 <sup>st</sup>                                                                          | 2.3.2 Operating Principle                                                                      |
|                                                           | 2 <sup>nd</sup>                                                                          | 2.3.3 P-N Junction Characteristics                                                             |
|                                                           | 3 <sup>rd</sup>                                                                          | 2.3.4 I-V Characteristics                                                                      |
| 5 <sup>th</sup>                                           | 1 <sup>st</sup>                                                                          | 2.3.5 Small Signal Switching Models                                                            |
|                                                           | 2 <sup>nd</sup>                                                                          | 2.3.6 Avalanche Breakdown                                                                      |
|                                                           | 3 <sup>rd</sup>                                                                          | 2.3.7 Zener Diode                                                                              |
| 6 <sup>th</sup>                                           | 1 <sup>st</sup>                                                                          | 2.3.8 Schottky Diode                                                                           |
|                                                           | 2 <sup>nd</sup>                                                                          | 2.3.9 LED                                                                                      |

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|                  | 3 <sup>rd</sup> | 2.3.10 Photodiode and Solar Cell                                                                               |
| 7 <sup>th</sup>  | 1 <sup>st</sup> | 3.1 Construction of BJT                                                                                        |
|                  | 2 <sup>nd</sup> | 3.2 Operating Principle of BJT                                                                                 |
|                  | 3 <sup>rd</sup> | 3.3 Types of BJT                                                                                               |
| 8 <sup>th</sup>  | 1 <sup>st</sup> | 3.4 Working of p-n-p & n-p-n BJT                                                                               |
|                  | 2 <sup>nd</sup> | 3.5 I-V Characteristics                                                                                        |
|                  | 3 <sup>rd</sup> | 3.6 Ebers Moll Model                                                                                           |
| 9 <sup>th</sup>  | 1 <sup>st</sup> | 3.7 CB, CE, CC Configurations                                                                                  |
|                  | 2 <sup>nd</sup> | 3.8 Input & Output Characteristics                                                                             |
|                  | 3 <sup>rd</sup> | 3.9 Alpha, Beta, Gamma Definitions                                                                             |
| 10 <sup>th</sup> | 1 <sup>st</sup> | 3.10 Mathematical Relationship                                                                                 |
|                  | 2 <sup>nd</sup> | 3.11, 3.12 Biasing and Types                                                                                   |
|                  | 3 <sup>rd</sup> | 3.13 h-Parameter Model                                                                                         |
| 11 <sup>th</sup> | 1 <sup>st</sup> | 3.14 Load Line, Q-Point                                                                                        |
|                  | 2 <sup>nd</sup> | 3.15 Types of Coupling                                                                                         |
|                  | 3 <sup>rd</sup> | 3.16 R-C Coupled Amplifier                                                                                     |
| 12 <sup>th</sup> | 1 <sup>st</sup> | 3.17 Frequency Response                                                                                        |
|                  | 2 <sup>nd</sup> | 4.1, 4.2 FET Intro & BJT vs JFET                                                                               |
|                  | 3 <sup>rd</sup> | 4.3 JFET Construction & Operation                                                                              |
| 13 <sup>th</sup> | 1 <sup>st</sup> | 4.4 JFET Parameters                                                                                            |
|                  | 2 <sup>nd</sup> | 4.5 JFET as Amplifier, MOSFET Intro                                                                            |
|                  | 3 <sup>rd</sup> | 4.6 MOSFET Classification                                                                                      |
| 14 <sup>th</sup> | 1 <sup>st</sup> | 4.7 MOSFET Characteristics                                                                                     |
|                  | 2 <sup>nd</sup> | 4.8 CMOS, VMOS, LDMOS                                                                                          |
|                  | 3 <sup>rd</sup> | 5.1, 5.2 Feedback Amplifier & Types, 5.3 Characteristics of Amplifiers, 5.4 Oscillators & Barkhausen Criterion |
| 15 <sup>th</sup> | 1 <sup>st</sup> | 5.5.1 to 5.5.3 LC oscillator, Colpitts, Hartley, Wien.<br>6.1 Oxidation, 6.2 Diffusion                         |

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|--|-----------------|------------------------------------------------------------------------------|
|  | 1 <sup>st</sup> |                                                                              |
|  | 2 <sup>nd</sup> | 6.3 Ion implantation. 6.4 Photo-lithography<br>6.5 Etching                   |
|  | 3 <sup>rd</sup> | 6.6 Chemical vapor deposition<br>6.7 Sputtering<br>6.8 Twin-tub CMOS process |

  
Signature of Faculty  
(ETC)

  
Signature of HOD (ETC)