| RGP<br>WIN | V (DI<br>G) B                                  | IPLON<br>HOPA | /IA<br>AL                         | OBE CUE<br>FOR TH   | RRICULUM<br>E COURSE                          | FORM 3                          | AT-S          | Sheet<br>No. 1/5 |  |  |  |
|------------|--|---------------|-----------------------------------|---|---|---------------------------------|---------------|------------------|--|--|--|
| Branch     | Ele  | ectronic      | s and '                           | FOR THE COURSE         and Telecommunication Engineering       Semester         Course Name       Basic Electr         tudent will be able to Explain the fundamental of emiconductor physics       Basic Electr         ble to Describe the basic of semiconductor naterial.(Cognitive)       Image: Conduction & valence), Effect of temperation on ductivity, Intrinsic & Extrinsic semiconductor         nergy bands (conduction & valence), Effect of temperation       Image: Conduction & valence), Effect of temperation         ble to Explain different concept of P-N unction.(Cognitive)       Image: Conduction & valence) |   | Semester                        | r II          |                  |  |  |  |
| Course (   | Code   | CC            | )3                                | Course Name   | Bas   | sic Electroni                   | ics           |                  |  |  |  |
| Course     | Outc   | ome 1         | Stude<br>semic                    | nt will be able to E<br>conductor physics   | xplain the fundamen                           | tal of                          | Teach<br>Hrs. | Marks            |  |  |  |
| Learnin    | ng Ou<br>1                                     | tcome         | Able t<br>mater                   | to Describe the ba<br>rial.( <b>Cognitive</b> )   | sic of semiconducto                           | or                              | 08            | 10               |  |  |  |
| Co         | Learning Outcome<br>1<br>Contents<br>Method of |               | Energ<br>condu                    | y bands (conductio<br>uctivity, Intrinsic &   | re on   |                                 |               |                  |  |  |  |
| Me<br>Asso | thod o   | of<br>nt      | Intern                            | nal   |   |                                 |               |                  |  |  |  |
| Learnin    | ng Ou<br>2                                     | tcome         | Able t<br>Junct                   | to Explain differention.( <b>Cognitive</b> )  | nt concept of P-N                             |                                 | 08            | 10               |  |  |  |
| Co         | ontent   | s             | Dopir<br>minor<br>Conce<br>regior | ng, P-type and N-typ<br>rity carriers<br>ept of P-N junction,<br>n  | pe semiconductor, Co<br>Diffusion & Drift, Ba | oncept of maj<br>rrier potentia | ority and     | on               |  |  |  |
| Me         | thod o   | of<br>nt      | Exter                             | mal   |   |                                 |               |                  |  |  |  |

RGPV (DIPLOMA WING) BHOPAL

# OBE CURRICULUM FOR THE COURSE

| FORMAT- | S |
|---------|---|
| 3       | N |

Sheet No. 2/5

| Branch   | Ele           | ctronic  | s and '  | Telecommunica   | tion Engineering                                     | Semester                        | I                        | I                    |  |  |
|--|---------------|----------|--|---|--|---------------------------------|--------------------------|----------------------|--|--|
| Course C   | ode           | EO       | 3  | Course Name   | Bas  | sic Electroni                   | cs                       |                      |  |  |
| Course (   | Outco         | ome 2    | Stude<br>diffe   | nt will be able to<br>rentsemiconduc  | Classify<br>tor diodes.                              |                                 | Teach<br>Hrs.            | Marks                |  |  |
| Learning   | g Out<br>3    | tcome    | Able t<br>juncti   | o Illustrate vario  | us type of diode viz.<br>nnel diode.( <b>Cogniti</b> | PN<br>ve)                       | 07                       | 10                   |  |  |
| Con  | ntent         | 5        | PN Ju<br>- V-I C<br>Const<br>Diode   | nction Diodes: Bas<br>Characteristic<br>ructional features<br>e, Tunnel Diode | ic Structure and symb<br>, characteristics, symb     | ool - Forward<br>ool and applic | & Reverse<br>ations of - | e Biasing<br>- Zener |  |  |
| Met<br>Asses   | hod (<br>ssme | of<br>nt | Exte   | ernal   |  |                                 |                          |                      |  |  |
| Learning   | g Out<br>4    | tcome    | Able t<br>viz.Sc   | o Illustrate variou<br>chottky, Varactor,<br>C <b>ognitive</b> )              | us type of diode<br>Photo Diode and                  |                                 | 07                       | 10                   |  |  |
| Con  | ntent         | 5        | Const<br>Schot   | ructional features<br>tky Diode, Varacto                                      | , characteristics, symb<br>r Diode, Photo Diode      | ool and applic<br>, LED.        | ations of -              | -                    |  |  |
| Met<br>Asses   | hod (<br>ssme | of<br>nt | Intern   | nal   |  |                                 |                          |                      |  |  |
| Learning   | g Out<br>5    | tcome    | Able t<br>( <b>Psy</b>   | o Verify the V-Ic<br>chomotor)  | characteristics of dio                               | de.                             | 08                       | 10                   |  |  |
| Con  | ntent         | 5        | Plot the V-I characteristics of a Silicon Diode, Germanium Diode and Zener<br>Diode using Trainer-Kit/breadboard and/or Simulation Software and<br>Verify it |   |  |                                 |                          |                      |  |  |
| Method ofExternalAssessmentImage: Constraint of the second sec |               |          |  |   |  |                                 |                          |                      |  |  |

#### RGPV (DIPLOMA WING) BHOPAL

# OBE CURRICULUM FOR THE COURSE

| Branch    | E   | ectronic | s and '                           | Telecommunicat  | ication Engineering       Semester       II         me       Basic Electronics         to Categorize diode rectifiers, ers.       Teach Hrs.       Marl         ers.       07       10         fferent diode based circuit meters. (Cognitive)       07       10         , Types of rectifier-Half Wave, Full Wave and Bridge Average, Peak and RMS Values, Ripple factor, PIV of er circuits, Rectifier efficiency.       08       10         ration of filters and multiplier       08       10         s, Types of filter circuits-capacitor, L- type and pie type,       11         ltiplier - Doubler and Tripler, Clipper- Series and Shunt, d Negative.       08       15         e circuit of Half Wave rectifier, Full Wave rectifiersand rainer-Kit/breadboard and/or Simulation Software       08       15 |  |                           | I                 |
|-----------|---|----------|-----------------------------------|---|---|--|---------------------------|-------------------|
| Course (  | Code  | EO       | 3                                 | Course Name   | Ba  | sic Electroni                              | cs                        |                   |
| Course    | Electronics and Telecommunication Engineering       Semester         Code       E03       Course Name       Basic Electronic         e Outcome 3       Student will be able to Categorize diode rectifiers, filters and multipliers.       Able to Constructdifferent diode based circuit with different parameters. (Cognitive)         ontents       Able to Constructdifferent diode based circuit with different parameters. (Cognitive)       Need of rectification, Types of rectifier-Half Wave, Full Wave, rectifier, Comparison, Average, Peak and RMS Values, Rippled diode used in rectifier circuits, Rectifier efficiency.         ethod of sessment       External         Able to Explain operation of filters and multiplier circuits. (Cognitive)       Need of Filter Circuits, Types of filter circuits-capacitor, L- type comparison of filters         Basics of Voltage multiplier - Doubler and Tripler, Clipper- Secclamper- Positive and Negative.       Need for filters. (Psychomotor)         ontents       Able to Assemble the circuit and verify the waveform of rectifiers. (Psychomotor)       Able to Assemble the circuit of Half Wave rectifier, Full Waveform of rectifiers. (Psychomotor) |          |                                   |   |   | Teach<br>Hrs.                              | Marks                     |                   |
| Learning  | g Out   | come 6   | Able t<br>with o                  | o Constructdiffere<br>different paramete  | ent diode based circ<br>ers. ( <b>Cognitive</b> )   | uit  | 07                        | 10                |
| Co        | ontent  | S        | Need<br>rectifi<br>diode          | of rectification, Typ<br>er, Comparison, Av<br>used in rectifier cir                      | bes of rectifier-Half W<br>erage, Peak and RMS<br>cuits, Rectifier efficie  | /ave, Full Wav<br>5 Values, Rippl<br>ency. | e and Brid<br>e factor, P | ge<br>IV of       |
| Me<br>Ass | Method of<br>Assessment<br>Learning Outcome   |          |                                   | nal   |   |  |                           |                   |
| Learnin   | g Out   | come 7   | Able t<br>circui<br>( <b>Cog</b>  | o Explain operatio<br>ts.<br><b>nitive</b> )  | on of filters and mul   | tiplier                                    | 08                        | 10                |
| Co        | ontent  | S        | Need<br>comp<br>Basics<br>Clamp   | of Filter Circuits, Ty<br>arison of filters<br>of Voltage multipl<br>per- Positive and Ne | vpes of filter circuits-o<br>ier - Doubler and Trip<br>egative.   | capacitor, L- ty<br>ller, Clipper- So      | pe and pie                | e type,<br>Shunt, |
| Me<br>Ass | thod<br>essme   | of<br>nt | Exter                             | nal   | -   |  |                           |                   |
| Learnin   | g Out   | come 8   | Able t<br>of rec<br>( <b>Psyc</b> | o Assemble the ci<br>tifiers.<br><b>homotor</b> )   | rcuit and verify the  | waveform                                   | 08                        | 15                |
| Co        | ontent  | S        | Asser<br>Bridge<br>and v          | nble / setup the ci<br>e rectifier on Train<br>erify the output w                         | rcuit of Half Wave r<br>er-Kit/breadboard a<br>vaveform.  | ectifier, Full W<br>nd/or Simula           | ave rectifi<br>tion Softv | ersand<br>ware    |
| Me        | thod<br>essme   | of<br>nt | Interr                            | nal   |   |  |                           |                   |

#### RGPV (DIPLOMA WING) BHOPAL

# OBE CURRICULUM FOR THE COURSE

FORMAT-3

| Branch Electronic       | es and                             | Telecommunicat   | ion Engineering  | Semester  | I                                       | I                      |
|-------------------------|------------------------------------|--|--|---|---|------------------------|
| Course Code E0          | )3                                 | Course Name  | Ba   | sic Electroni   | cs                                      |                        |
| Course Outcome 4        | Stude<br>junct                     | nt will be able to C<br>iontransistors   | compare different bi   | polar   | Teach<br>Hrs                            | Marks                  |
| Learning Outcome 9      | Able t<br>config                   | o Classify different<br>guration.( <b>Cogniti</b>  | nt BJT and its<br>ve)  |   | 07                                      | 10                     |
| Contents                | Basic<br>transi<br>Transi<br>Comp  | Structure, Types of<br>stors, Transistor ac<br>istor Configuration:<br>parison between the | Bipolar Junction Trar<br>tion, Check and ident<br>s - CE, CC and CB mod<br>ree configurations. | nsistor (BJT): Pl<br>ify the transist<br>le.          | NP & NPN<br>or leads.                   |                        |
| Method of<br>Assessment | Exter                              | mal  |  |   |   |                        |
| Learning Outcome<br>10  | Able t<br>(Cog                     | o Illustrate thecha<br>nitive)   | racteristic of BJT.  |   | 07                                      | 10                     |
| Contents                | V -I ch<br>Chara<br>DC cu<br>Trans | naracteristics of Bip<br>cteristics, Regions<br>rrent gains- Alpha (<br>istor as a Switch. | olar Junction Transist<br>of Transistor operatio<br>(α) and Beta (β ), relat                   | or (BJT) - Inpu<br>n - active, satu<br>tion between a | t and Outp<br>aration & d<br>alpha & be | out<br>cutoff,<br>eta, |
| Method of<br>Assessment | Exter                              | nal  |  |   |   |                        |
| Learning Outcome<br>11  | Able t<br>differ<br>( <b>Psyc</b>  | o Plot the input an<br>ent configuration.<br><b>chomotor</b> )                             | nd output characterist   | ics of BJT for  | 08                                      | 10                     |
| Contents                | Setup<br>outpu<br>Softw            | the BJT for CE, CB<br>It characteristicsus<br>vare and Verify it.                          | and CC configuration<br>ing Trainer-Kit/brea   | circuit and obt<br>dboard and/o                       | tain input<br>r Simulat                 | and<br>ion             |
| Method of<br>Assessment | Exter                              | nal  |  |   |   |                        |

| RGP<br>WIN | V (D)<br>(G) B                      | IPLON<br>BHOPA | MA<br>AL                   | OBE CU<br>FOR TH  | RRICULUM<br>E COURSE  | FORM<br>3                    | AT-             | Sheet<br>No. 5/5   |  |  |  |
|------------|-------------------------------------|----------------|----------------------------|---|---|------------------------------|-----------------|--------------------|--|--|--|
| Branch     | E                                   | ectroni        | cs and                     | Telecommunicat  | ion Engineering   | Semester                     |                 | II                 |  |  |  |
| Course (   | Code                                | E              | 03                         | Course Name   | Basi  | <b>Basic Electronics</b>     |                 |                    |  |  |  |
| Course     | Outc                                | ome 5          | Class                      | ify different type  | of field effect transis   | stors (FET)                  | Teach<br>Hrs    | h Marks            |  |  |  |
| Learnin    | ng Ou<br>12                         | tcome          | Able t                     | to Explain the wor  | king principle of FE7   | Гs.                          | 07              | 10                 |  |  |  |
| Co         | Contents<br>Method of<br>Assessment |                |                            | of FET, Comparison<br>peration, V -I chara<br>ET- Depletion and I | n of FET with BJT,<br>cteristic, Pinch-off volt<br>Enhancement type | age,                         | 1               |                    |  |  |  |
| Me<br>Ass  | thod<br>essme                       | of<br>ent      | Exter                      | mal   |   |                              |                 |                    |  |  |  |
| Learnin    | ng Ou<br>13                         | tcome          | Able t                     | o Define CMOS,<br>(nitive)  | MESFET and UJT.   |                              | 07              | 10                 |  |  |  |
| Co         | ontent                              | S              | Introc<br>UJT (l<br>as rel | luction to CMOS an<br>Jnijunction Transist<br>axation oscillator  | d MESFET.<br>or) - Structural diagrar                               | n of UJT, woi                | king of         | UJT, UJT           |  |  |  |
| Me<br>Ass  | thod<br>essme                       | of<br>ent      | Intern                     | nal   |   |                              |                 |                    |  |  |  |
| Learnin    | ng Ou<br>14                         | tcome          | Able t<br>UJT.             | o Verify the chara<br>( <b>Psychomotor</b> )                      | cteristic of FETs and   |                              | 08              | 15                 |  |  |  |
| Co         | ontent                              | S              | Asser<br>UJT<br>it.        | mble the circuit an<br>On Trainer-Kit/bro                         | d plot V-I characteris<br>eadboard and/or Simu                      | stic of FET,<br>ulation Soft | MOSF<br>ware ar | ET and<br>d Verify |  |  |  |
| Me<br>Ass  | thod (                              | of<br>ent      | Intern                     | nal   |   |                              |                 |                    |  |  |  |

### SuggestedListofExperiments:

| S.N. | Experiment  |
|------|---|
| 1.   | To plot the V-I characteristics of a Silicon Diode                              |
| 2.   | To plot the V-I characteristics of a Germanium Diode                            |
| 3.   | To verify the V-I characteristics of Zener Diode.                               |
| 4.   | To setup the circuit and verify the waveforms of Half Wave rectifier.           |
| 5.   | To setup the circuit and verify the waveforms of Full Wave rectifiers.          |
| 6.   | To setup the circuit and verify the waveforms of Bridge rectifier               |
| 7.   | To obtain the input and output Transistor Characteristics for CE configuration. |
| 8.   | To obtain the input and output Transistor Characteristics for CB configuration. |
| 9.   | To obtain the input and output Transistor Characteristics for CC configuration. |
| 10.  | To verify the V-I Characteristics of FET  |
| 11.  | To verify the V-I Characteristics of UJT.                                       |
| 12.  | To verify the V-I Characteristics of MOSFET                                     |

#### **ReferenceBooks/WebPortals:**

| S.N. | Title                              | Author                       |
|------|------------------------------------|------------------------------|
| 1.   | Electronic Devices & CKTs          | Mottershead                  |
| 2.   | Electronic Devices & Circuits      | Robert Boylestad             |
| 3.   | Electronic Devices and Circuits    | Millman&Halkias              |
| 4.   | A Text book of Applied Electronics | R.S. Sedha, S. Chand &Co.New |
|      |                                    | Delhi                        |
| 5.   | Principals of Electronics          | Latest ,V.K.Mehta , S.Chand  |
|      |                                    | Publication                  |
| 6.   | Electronics Principles             | Malvino TMH                  |
| 7.   | Basic Electronics                  | B. L. Thareja                |

|         | GPV (Diploma Wing ) Bhop   |                          |   | SCHEME FOR LEARNING  |  |               | Code            | Course Code                   |   | CO<br>Code  | LO<br>Code | Л                      |
|---------|--|--------------------------|---|--|--|---------------|-----------------|-------------------------------|---|---|------------|------------------------|
| KGPV    | י (טוסוט)  | oma wing ) B             | nopai   | OU <sup>.</sup>  | ТСОМЕ  | E C           | 3               | 2                             | 0 1   | 1   | 1          | Format No. <b>4</b>    |
| COURS   | E NAME   | <b>Basic Electronics</b> |   |  |  | i             |                 |                               |   |   |            |                        |
| CO Des  | cription   | Explain the fundar       | mental of   | f semiconductor phys   | ics  |               |                 |                               |   |   |            |                        |
| LO Dese | cription   | Describe the basic       | of semic  | conductor material.  |  |               |                 |                               |   |   |            |                        |
|         |  |                          |   |  | SCHEME OF STUDY  |               |                 |                               |   |   |            |                        |
| S. No.  | L  | earning Content          |   | Teaching –<br>Learning Method  | Description of T-L<br>Process  | Teach<br>Hrs. | Pr<br>/Tut      | act.<br>t Hrs.                | LRs   | Requi   | red        | Remarks                |
| LO-01   | 01 Energy bands (conduction & valence), Effect of temperature on conductivity, Intrinsic & Extrinsic semiconductor |                          | n & Ir<br>reon cl<br>trinsic P<br>q                 | nteractive<br>lassroom lecture,<br>PPT, demonstration,<br>Juiz, assignments  | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>quiz/ assignments/<br>tutorial. | 08            | - 80            |                               | Text Boo<br>Handout<br>board, ch<br>lectures-<br>others | ext Books, PPT,<br>landouts, chalk<br>board, charts.Videos<br>ectures- NPTEL&<br>others |            |                        |
|         |  |                          |   | SC   | HEME OF ASSESSMENT   |               |                 |                               |   |   |            |                        |
| S. No.  | Metho  | d of Assessment          |   | Description  | of Assessment  | I             | Maximu<br>Marks | im<br>S                       | Resources   | s Requ  | ired       | External /<br>Internal |
| LO-01   | Mid S  | emester Theory<br>Exam   | Studer<br>1. List<br>it.<br>2. Dra<br>3. Exp<br>sem | ent will be asked to(and/or):<br>at out various type of semiconductor and exp<br>raw the energy band diagram of given materia<br>plain effect of temperature on conductivity of<br>miconductor |  |               | 10              | 0 Question paper, Ra<br>scale |   |   | ating      | Internal               |
|         |  |                          | A   | DDITIONAL INSTRU   | ICTIONS FOR THE HOD/   | FACULT        | Y (IF AN        | IY)                           |   |   |            |                        |
|         |  |                          |   |  |  |               |                 |                               |   |   |            |                        |

|        |   | ma Wing ) Ph             | onal                                | SCHEME   | FOR LEARNING   | Brar            | nch Code      | Course            | Code            | e CO LO<br>Code Code   |          | /                         |
|--------|---|--------------------------|-------------------------------------|--|--|-----------------|---------------|-------------------|-----------------|--|----------|---------------------------|
| KGPV   |   | oma wing ) br            | юраї                                | OL   | JTCOME   | Ε               | 0 3           | 2 0               | 1               | 1  | 2        | Format No. 4              |
| COURS  | E NAME  | <b>Basic Electronics</b> |                                     |  |  |                 |               |                   |                 |  |          |                           |
| CO Des | cription  | Explain the fundam       | nental of                           | semiconductor phy  | vsics  |                 |               |                   |                 |  |          |                           |
| LO Des | cription  | Explain different co     | oncept of                           | f P-N Junction.  |  |                 |               |                   |                 |  |          |                           |
|        |   |                          |                                     |  | SCHEME OF STUDY  |                 |               |                   |                 |  |          |                           |
| S. No. | L   | earning Content          | L                                   | Teaching –<br>earning Method   | Description of T-L Pro   | cess            | Teach<br>Hrs. | Pra<br>/Tu<br>Hr: | ct.<br>It<br>5. | LRs I  | Require  | ed Remarks                |
| LO-02  | 2 Doping, P-type and N-type<br>semiconductor, Concept of majority<br>and minority carriers<br>Concept of P-N junction, Diffusion &<br>Drift, Barrier potential, Depletion<br>region |                          |                                     | nteractive<br>lassroom lecture,<br>PT,<br>emonstration,<br>uiz,assignments,<br>utorial | Teacher will explain the<br>contents and provide<br>handouts to students. Tea<br>will conduct quiz/assignm<br>tutorial to make students<br>practice their knowledge. | acher<br>nents/ | 08            |                   |                 | Text Books, PPT,<br>Handouts, chalk<br>board, charts,<br>Numerical<br>Problems<br>Workbook |          | ΡΤ,<br>k                  |
|        |   |                          |                                     | S  | CHEME OF ASSESSMENT  | Г               |               |                   |                 |  |          |                           |
| S. No. | Metho   | d of Assessment          |                                     | Description of   | Assessment   | Max<br>M        | kimum<br>arks | Re                | sourc           | es Req   | uired    | External<br>/<br>Internal |
| LO-02  | End S   | Semester Theory<br>Exam  | Studen<br>1. Wł<br>2. Dra<br>3. Exp | <b>nt will be asked to</b><br>hat is doping?<br>aw and explain th<br>plain the concept | o(and/or):<br>e PN junction Diode.<br>of diffusion and drift.  |                 | 10            | Quest             | ion pa          | per, Ra  | ting sca | ile External              |
|        | 1   | '                        | A                                   | DDITIONAL INSTR  | UCTIONS FOR THE HOD  | FACUI           | LTY (IF AN    | IY)               |                 |  |          |                           |
|        |   |                          |                                     |  |  |                 |               |                   |                 |  |          |                           |

|        | / (Dinla  | ma Wing ) Bł  | honal   | SCHEM  | E FOR LEARNING   | 6                                     | Branch Co     | ode   |             | Course      | Code                                    | CO<br>Code                                     | LO<br>Code                            | с III <b>Л</b>             |
|--------|---|---|---|--|--|---------------------------------------|---------------|-------|-------------|-------------|---|--|---------------------------------------|----------------------------|
| NGP    |   |   | юраі  |  | OUTCOME  |                                       | E 0           | 3     | 3 2         | 0           | 1                                       | 2  | 3                                     | Format No. 🕂               |
| COURS  | SE NAME   | <b>Basic Electronics</b>  |   |  |  |                                       |               |       |             |             |   |  |                                       |                            |
| CO Des | cription  | Classify different s  | semicond  | uctor diodes.  |  |                                       |               |       |             |             |   |  |                                       |                            |
| LO Des | cription  | Illustrate various ty   | pe of dic   | ode viz. PN junc   | tion, Zenerand Tunnel dic  | ode.                                  |               |       |             |             |   |  |                                       |                            |
|        |   |   |   |  | SCHEME OF STUD   | Υ                                     |               |       |             |             |   |  |                                       |                            |
| S. No. | L   | earning Content   |   | Teaching –<br>Learning<br>Method   | Description of T-L Pr  | ocess                                 | Teach<br>Hrs. | า     | Pra<br>/Tut | ct.<br>Hrs. | L                                       | .Rs Red  | quired                                | Remarks                    |
| LO-03  | PN Juncti<br>and symb<br>Biasing - V<br>Construct<br>character<br>applicatio<br>Tunnel Di | on Diodes: Basic Struction<br>of - Forward & Revers<br>V-I Characteristic<br>cional features,<br>istics, symbol and<br>ons of – Zener Diode,<br>ode | cture In<br>se cl<br>le<br>di<br>q<br>s,  | iteractive<br>assroom<br>ecture, PPT,<br>emonstration,<br>uiz,assignment<br>tutorial                                 | Teacher will explain the<br>contents and provide<br>handouts to students. T<br>will conduct assignmen<br>quiz/tutorial to make st<br>practice their knowledg | e<br>Feacher<br>ts/<br>cudents<br>ge. | 07<br>r       |       |             | -           | Text<br>Hand<br>board<br>lectu<br>other | Books,<br>louts, c<br>1, chart<br>re- NP<br>s. | , PPT,<br>halk<br>s, Video<br>FEL and | c<br>d                     |
|        |   |   |   |  | SCHEME OF ASSESSM  | IENT                                  |               |       |             |             |   |  |                                       |                            |
| S. No. | Metho   | d of Assessment   |   | Description o  | fAssessment  | Max<br>M                              | kimum<br>arks |       | Re          | sourc       | es Reo                                  | quired   |                                       | External /<br>Internal     |
| LO-03  | End S   | Semester Theory<br>Exam   | <ol> <li>Studen</li> <li>Draw of fc</li> <li>Draw</li> <li>List zene</li> </ol> | <b>It will be asked</b><br>w circuit diagram<br>orward/reverse b<br>w characteristic<br>out the applica<br>or diode. | <b>I to</b> (and/or):<br>n and explain working<br>iasing of PN Junction.<br>of Zener diode.<br>ation of tunnel diode,  |                                       | 10            | C     | Questi      | on pa       | iper, R                                 | lating s                                       | cale                                  | External                   |
|        |   |   | A   | DDITIONAL INS  | TRUCTIONS FOR THE H  | IOD/ F                                | ACULTY        | (IF / | ANY)        |             |   |  |                                       |                            |
|        |   |   |   |  |  |                                       |               |       |             |             |   |  |                                       |                            |
| RGP\   | / (Diplo  | oma Wing ) Bł   | hopal   | SCHEM  | E FOR LEARNING   | ì                                     | Branch Co     | ode   |             | Cours       | se                                      | se Code  | se Code CO<br>Code                    | se Code CO LO<br>Code Code |

|        |  |                          |                                  |   | OUTCOME  | ΕΟ                             | 3 2  | 0         | 1     | 2                                      | 4          |                        |
|--------|--|--------------------------|----------------------------------|---|--|--------------------------------|--|-----------|-------|--|------------|------------------------|
| COURS  | E NAME   | <b>Basic Electronics</b> |                                  |   |  |                                |  |           |       |  |            |                        |
| CO Des | cription   | Classify different       | semicon                          | ductor diodes.  |  |                                |  |           |       |  |            |                        |
| LO Des | cription   | Illustrate various ty    | ype of di                        | ode viz.Schottky  | , Varactor, Photo Diode and LED  | )                              |  |           |       |  |            |                        |
|        |  | 1                        |                                  |   | SCHEME OF STUDY  |                                |  |           |       |  |            |                        |
| S. No. | L  | earning Content          |                                  | Teaching –<br>Learning<br>Method  | Description of T-L<br>Process  | Teach<br>Hrs.                  | Pract.<br>/Tut Hrs.  |           | LRs R | equire                                 | ed         | Remarks                |
| LO-04  | LO-04 Constructional features,<br>characteristics, symbol and<br>applications of – Schottky Dioc<br>Varactor Diode, Photo Diode,<br>LED. |                          |                                  | Interactive<br>classroom<br>ecture, PPT,<br>Video,<br>lemonstration,<br>quiz,<br>assignments. | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>assignments/ quiz/tutorial<br>to make students practice<br>their knowledge. | 07                             | Text Books, I<br>Handouts, cha<br>board, charts,<br>lecture- NPTI<br>others. |           |       | cs, PPT<br>chalk<br>rts, Via<br>PTEL a | deo<br>and |                        |
|        |  |                          |                                  |   | SCHEME OF ASSESSMEN  | іт                             |  |           |       |  |            |                        |
| S. No. | Metho  | d of Assessment          |                                  | Description of Assessment   |  |                                | <b>Resources Required</b>  |           |       |  |            | External /<br>Internal |
| LO-04  | Mid S  | emester Theory<br>Exam   | Stude<br>1. Exp<br>dio<br>2. Dra | nt will be aske<br>plain working of<br>de with circuit d<br>aw the characteri                 | 10   | Question paper + Rating scale. |  |           |       |  | Internal   |                        |
|        |  |                          | Δ                                | DDITIONAL IN  | STRUCTIONS FOR THE HOD   | )/ FACULTY                     | (IF ANY)   |           |       |  |            |                        |
|        | / (Dial-   |                          | h o i o o o                      | COLLER  |  | Branch                         | ode  | ourse Cod |       | СО                                     | LO         |                        |

|        |   |                          |   |  | OUTCOME   | E 0           | 3 2                    | 0 1   | 2  | 5  |                               |                     |
|--------|---|--------------------------|---|--|---|---------------|------------------------|---|--|--|-------------------------------|---------------------|
| COURS  | E NAME  | <b>Basic Electronics</b> | 5   |  |   |               |                        |   |  |  |                               |                     |
| CO Des | cription  | Classify different       | semicor                                   | nductor diode                                | 28.   |               |                        |   |  |  |                               |                     |
| LO Des | cription  | Verify the V-I cha       | racterist                                 | tics of diode.                               |   |               |                        |   |  |  |                               |                     |
|        |   |                          |   |  | SCHEME OF STUDY   |               |                        |   |  |  |                               |                     |
| S. No. | Leai  | rning Content            | Te<br>Lo<br>N                             | aching –<br>earning<br>⁄lethod               | Description of T-L Process  | Teach<br>Hrs. | Pract.<br>/Tut<br>Hrs. | L   | Rs Req   | uired  |                               | Remarks             |
| LO-05  | 5 Plot the V-I characteristics<br>of a Silicon Diode,<br>Germanium Diode and<br>Zener Diode using Trainer-<br>Kit/breadboard and/or<br>Simulation Software and<br>Verify it |                          | Lab<br>demo<br>PPT ,<br>practic<br>assigr | nstration,<br>hands on<br>ce, lab<br>nments. | <ul> <li>Teacher with support from lab<br/>staff will demonstrate the<br/>procedure of lab experiments.</li> <li>Student will conduct lab<br/>assignment based on these<br/>experiments.</li> </ul> | 08            | 8                      | Lab man<br>Handou<br>trainer<br>with me<br>instrum<br>with rel<br>softwar<br>internet | nual, ch<br>ts, exp<br>instrum<br>easuring<br>ents, co<br>evant s<br>e and h<br>t. | arts,<br>erimen<br>ents/k<br>g<br>ompute<br>imulati<br>igh spe | tal<br>it<br>er<br>ion<br>eed |                     |
|        |   |                          |   |  | SCHEME OF ASSESSMENT  | !             |                        |   |  |  |                               |                     |
| S. No. | Met   | hod of Assessmen         | t   | De   | scription of Assessment   | Maxin<br>Mar  | num<br>ˈks             | Resource  | s Requ   | ired   | Ex<br>Ir                      | ternal /<br>nternal |
| LO-05  | -05 Practical test in laboratory 1  |                          |   | Student wil<br>Simulate<br>given dio         | <b>I be asked to</b><br>and verify the V-I characteristic of<br>de.   | 10            | )                      | Rubrics, R  | lating s   | cale   | E                             | External            |
|        |   |                          | ŀ   |  | L INSTRUCTIONS FOR THE HOD/   | FACULTY (     | IF ANY)                |   |  |  |                               |                     |
|        |   |                          |   |  |   |               |                        |   |  |  |                               |                     |
| RGP    | / (Diplo  | oma Wing ) B             | hopa                                      | I SCH  | EME FOR LEARNING  | Branch Cod    | e                      | Course Code   | CO<br>Code   | LO<br>Code   | Form                          | hat No <b>4</b>     |

|        |  |  |  | OUTCO   | OME   | E 0   | 3                 | 2 0                    | 1 3  | 6   |                        |
|--------|--|--|--|---|---|---|-------------------|------------------------|--|---|------------------------|
| COURS  | SE NAME  | Basic E  | lectronics   |   |   |   |                   |                        |  |   |                        |
| CO Des | cription   | Categor  | ize diode rectifiers, filt   | ers and multipliers.  |   |   |                   |                        |  |   |                        |
| LO Des | cription   | Constru  | ctdifferent diode based  | circuit with different  | parameters.   |   |                   |                        |  |   |                        |
|        |  |  |  | SCI   | HEME OF STUDY   |   |                   |                        |  |   |                        |
| S. No. |  | Learni   | ng Content   | Teaching –<br>Learning<br>Method  | Description of T-L  | . Process   | Tea<br>ch<br>Hrs. | Pract.<br>/Tut<br>Hrs. | LRs R  | equired   | Remarks                |
| LO-06  | Need of r<br>Wave, Fu<br>Comparis<br>Values, Ri<br>rectifier c | ectification<br>Il Wave an<br>on, Averag<br>ipple facto<br>ircuits, Re | n, Types of rectifier-Half<br>d Bridge rectifier,<br>ge, Peak and RMS<br>r, PIV of diode used in<br>ctifier efficiency.  | Interactive<br>classroom lecture,<br>PPT, Video,<br>demonstration,<br>quiz, assignments.                                | Teacher will explain<br>contents and provide<br>to students. Teacher<br>conduct assignments<br>quiz/tutorial to make<br>practice their knowle | the<br>handouts<br>will<br>/<br>students<br>edge. | 07                |                        | Text Boo<br>Handout<br>board, ch<br>Video leo<br>NPTEL a | oks, PPT,<br>s, chalk<br>arts,<br>cture-<br>and others. |                        |
|        |  |  |  | SCHEN   | ME OF ASSESSMENT  |   |                   | 1                      |  |   |                        |
| S. No. | Meth<br>Asses  | od of<br>sment   |  | Description of Ass  | essment   |   | Maxin<br>Mar      | num<br>ks              | Resources  | Required  | External /<br>Internal |
| LO-06  | End Se<br>Theory   | emester<br>/ Exam  | <ul> <li>Student will be ask</li> <li>1. Classify the rectif</li> <li>2. Draw circuit diag</li> <li>3. Derivevarious par</li> <li>4. Simple numerical</li> </ul> | ted to(and/or):<br>ier and list out the nee<br>ram and explain work<br>cameters of given recti<br>to calculate paramete | ed of it.<br>ing of given rectifier.<br>fier circuit.<br>rs of given rectifier circ   | cuit  | 10                | Q                      | uestion pap<br>scal                                      | er , Rating<br>e  | External               |
|        |  |  | ADD  |   | ONS FOR THE HOD/  | FACULTY (   | (IF ANY)          |                        |  |   |                        |
|        |  |  |  |   |   |   |                   |                        |  |   |                        |
| RGP    | / (Diplo   | oma W  | ing ) Bhopal   | SCHEME FOR  | LEARNING  | Branch Coo  | de                | Course Coo             | le CO<br>Code  | LO<br>Code Eo   | rmat No <b>A</b>       |

|        |   |                |   |  | OUTCOME  | Ε 0  | 3 2                 |             | 0                                     | 1   | 3                                      | 7                          |                        |
|--------|---|----------------|---|--|--|--|---------------------|-------------|---------------------------------------|---|--|----------------------------|------------------------|
| COURS  | E NAME  | Basic          | Electronics   |  |  |  |                     |             |                                       |   |  |                            |                        |
| CO Des | cription  | Catego         | orize diode rectifie  | ers, filters and mult  | tipliers.  |  |                     |             |                                       |   |  |                            |                        |
| LO Des | cription  | Explai         | n operation of filte  | ers and multiplier c   | circuits.  |  |                     |             |                                       |   |  |                            |                        |
|        |   |                |   |  | SCHEME OF STUDY  |  |                     |             |                                       |   |  |                            |                        |
| S. No. | Le  | earning        | Content   | Teaching –<br>Learning<br>Method   | Description of T-L<br>Process  | Teach<br>Hrs.  | Pract<br>/Tut H     | rs.         | l                                     | LRs I                                     | Requi                                  | red                        | Remarks                |
| LO-07  | Need of Filter Circuits, Types of<br>filter circuits-capacitor, L- type and<br>pie type, comparison of filters,<br>Basics of Voltage multiplier -<br>Doubler and Tripler, Clipper- Serie<br>and Shunt, Clamper- Positive and<br>Negative. |                | uits, Types of<br>citor, L- type and<br>on of filters,<br>nultiplier -<br>er, Clipper- Series<br>er- Positive and | Interactive<br>classroom<br>lecture, PPT,<br>Video,<br>demonstration,<br>quiz,<br>assignments.                     | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>assignments/ quiz/tutorial<br>to make students practice<br>their knowledge. | 08   |                     |             | Text<br>Hand<br>boar<br>lectu<br>othe | t Boo<br>douts<br>d, ch<br>ure- N<br>ers. | ks, PP<br>s, chall<br>arts, V<br>NPTEL | 'T,<br>k<br>/ideo<br>. and |                        |
|        |   |                |   | ·  | SCHEME OF ASSESSMEN  | Г  |                     |             |                                       |   |  |                            |                        |
| S. No. | Metho<br>Assessi  | od of<br>ment  |   | Descriptio   | on of Assessment   |  | Maxir<br>um<br>Mark | n<br>R<br>s | lesoi                                 | urce                                      | s Req                                  | uired                      | External /<br>Internal |
| LO-07  | End Sen<br>Theory   | nester<br>Exam | Student will be<br>1. List dow<br>2. Explain<br>3. Explain<br>4. Simple r   | e asked to (and/or<br>on different types of<br>the given filter circ<br>the given multiplie<br>numerical on clippe | or):<br>of filters and write down need o<br>cuit with the help of circuit diag<br>er circuit.<br>er & clamper circuit.   | f filter.<br>gram. 10 Question paper ,<br>Rating scale |                     |             |                                       |   | External                               |                            |                        |
|        |   |                |   | ADDITIONAL IN  | STRUCTIONS FOR THE HOD,  | / FACULTY  | (IF ANY)            |             |                                       |   |  |                            |                        |
|        |   |                |   |  |  |  |                     |             |                                       |   |  |                            |                        |
| RGP    | / (Diplo  | ma V           | Ving ) Bhop   | al SCHEM   | 1E FOR LEARNING  | Branch C   | ode                 | Cours       | se Code                               | e   | CO<br>Code                             | LO<br>Code                 | Format No.             |

|        |  |  | OU  | ТСОМЕ   |   | E 0           | 3 2                    | 0 1   | 3   | 8  |                        |
|--------|--|--|---|---|---|---------------|------------------------|---|---|--|------------------------|
| COURS  | SE NAME  | <b>Basic Electronics</b>   |   |   |   |               |                        |   |   |  |                        |
| CO Des | cription   | Categorize diode rectif  | ers, filters and multiplier   | rs.   |   |               |                        |   |   |  |                        |
| LO Des | cription   | Assemble the circuit an  | d verify the waveform o   | f rectifiers.   |   |               |                        |   |   |  |                        |
|        |  |  |   | SCHEME OF STU   | DY  |               |                        |   |   |  |                        |
| S. No. | L  | earning Content  | Teaching –<br>Learning Method   | Description o<br>Process  | f T-L   | Teach<br>Hrs. | Pract.<br>/Tut<br>Hrs. | LRs   | Requi   | ired   | Remarks                |
| LO-08  | Assembl<br>Half Wav<br>rectifiers<br>Trainer-<br>Simulati<br>the outpu | e / setup the circuit of<br>e rectifier, Full Wave<br>and Bridge rectifier on<br>Kit/breadboard and/or<br>on Software and verify<br>ut waveform. | Lab demonstration,<br>PPT , hands on<br>practice, lab<br>assignments.                 | <ul> <li>Teacher with surfrom lab staff we demonstrate the procedure of lab experiments.</li> <li>Student will correlab assignment on these experiment</li> </ul> | pport<br>ill<br>e<br>o<br>duct<br>based<br>ments. | 08            | 8                      | Lab manu<br>Handouts<br>trainer in<br>with mea<br>instrume<br>with relev<br>software<br>internet. | ial, cha<br>s, expe<br>strume<br>isuring<br>nts, co<br>vant sii<br>and hi | arts,<br>rimental<br>ents /kit<br>mputer<br>mulation<br>gh speed |                        |
|        | -  |  | SC  | CHEME OF ASSESS   | MENT  |               |                        |   |   |  |                        |
| S. No. | Met  | hod of Assessment  | Description of  | Assessment  | Maxi<br>Ma  | imum<br>arks  | Reso                   | ources Req  | uired   |  | External /<br>Internal |
| LO-09  | Prac   | tical test in laboratory   | <ul><li>Student will be aske</li><li>1. Setup the circuit and verify output</li></ul> | <b>ed to</b><br>of given rectifier<br>t waveform.   | 1   | 15            | Rubi                   | rics, Rating  | scale   |  | Internal               |
|        |  |  | ADDITIONAL INSTRU   | JCTIONS FOR THE   | HOD/ F  | ACULTY (I     | F ANY)                 |   |   |  |                        |
|        |  |  |   |   |   |               |                        |   |   |  |                        |

|        | PV (Diploma Wing ) Bhopa   | , SCHEN                  | ME FOR LEARNING   | В  | ranch C   | ode        | c         | Course Co      | de                            | CO<br>Code                                     | LO<br>Code                              |                            |                        |
|--------|--|--------------------------|---|--|-----------|------------|-----------|----------------|-------------------------------|--|---|----------------------------|------------------------|
| RGPV   |  | oma wing ) Bhop          | Dal   | OUTCOME  | Ε         | 0          | 3         | 2              | 0                             | 1  | 4                                       | 9                          | Format No. <b>4</b>    |
| COURS  | E NAME   | <b>Basic Electronics</b> | I   |  |           | 1          |           |                | -                             | -  | -                                       |                            | -                      |
| CO Des | cription   | Compare different bipo   | olar junctiontransis  | tors   |           |            |           |                |                               |  |   |                            |                        |
| LO Des | cription   | Classify different volta | ge regulator ICs.   |  |           |            |           |                |                               |  |   |                            |                        |
|        |  | ·                        |   | SCHEME OF STUDY  |           |            |           |                |                               |  |   |                            |                        |
| S. No. | L  | earning Content          | Teaching –<br>Learning<br>Method  | Description of T-L<br>Process  | Tea<br>Hr | ach<br>rs. | Pr<br>/Tu | act.<br>t Hrs. |                               | LRs  | Requi                                   | red                        | Remarks                |
| LO-9   | <ul> <li>Basic Structure, Types of Bipolar<br/>Junction Transistor (BJT): PNP &amp;<br/>NPN transistors, Transistor action,<br/>Check and identify the transistor<br/>leads.<br/>Transistor Configurations - CE, CC<br/>and CB mode.<br/>Comparison between three<br/>configurations.</li> </ul>   |                          | Interactive<br>classroom<br>lecture, PPT,<br>Video,<br>demonstration,<br>quiz,<br>assignments.                              | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>assignments/ quiz/tutorial<br>to make students practice<br>their knowledge. | 0         | 7          |           |                | Te<br>Ha<br>box<br>lec<br>oth | xt Boo<br>indout<br>ard, cl<br>sture-<br>ners. | oks, PH<br>s, chal<br>harts, \<br>NPTEI | PT,<br>k<br>/ideo<br>L and |                        |
|        |  |                          |   | SCHEME OF ASSESSMEN  | т         |            |           |                |                               |  |   |                            |                        |
| S. No. | Metho  | d of Assessment          | Descript  | ion of Assessment  | Ma        | axim       | um M      | arks           | Res                           | ource  | es Req                                  | uired                      | External /<br>Internal |
| LO-9   | <ul> <li>Method of Assessment</li> <li>Stud</li> <li>End Semester Theory<br/>Exam</li> <li>Diagonal</li> <li>Diagona</li></ul> |                          | <b>Ident will be ask</b><br>Explain the given<br>Transistor.<br>Draw circuit diagr<br>PNP and NPN tran<br>Compare different | ed to (and/or):<br>type of Bipolar Junction<br>am for given configuration of<br>asistor.<br>configuration of transistor.   |           |            | 10        |                | Ç                             | Questi<br>Ratin                                | on pap<br>Ig scale                      | er,<br>2.                  | External               |
|        | 1  | I                        | ADDITIONAL II   | NSTRUCTIONS FOR THE HOD  | / FACI    | JLTY       | (IF AI    | NY)            | 1                             |  |   |                            | 1                      |
|        |  |                          |   |  |           |            |           |                |                               |  |   |                            |                        |

|        |   |                        |   | SCHEN  | IE FOR LEARNING  | Bra     | anch Coo | de   |        | Course C        | ode                            | CO<br>Code                             | LO<br>Code                           |              |                           |
|--------|---|------------------------|---|--|--|---------|----------|------|--------|-----------------|--------------------------------|--|--------------------------------------|--------------|---------------------------|
| RGPV   |   | oma wing ) E           | snopa   |  | Ουτςομε  | Ε       | 0        | 3    | 2      | 0               | 1                              | 4                                      | 10                                   | Forn         | nat No. <b>4</b>          |
| COURS  | E NAME  | Basic Electronic       | CS  |  |  | II      |          | 1    |        |                 |                                |  |                                      |              |                           |
| CO Des | cription  | Compare differen       | nt bipolar  | junctiontransisto  | Drs  |         |          |      |        |                 |                                |  |                                      |              |                           |
| LO Des | cription  | Describe operation     | on of varie   | ous converter IC   | S.   |         |          |      |        |                 |                                |  |                                      |              |                           |
|        |   | 1                      |   |  | SCHEME OF STUDY  |         |          |      |        |                 |                                |  |                                      |              |                           |
| S. No. | S. No.       Learning Content       Teaching –<br>Learning<br>Method       Description of T-L Process       Teach<br>Hrs.       Pract.<br>/Tut Hrs.       LRs Required         LO_10       V-I characteristics of Bipolar       Interactive       Teacher will explain the       07       Text Books_PPT                  |                        |   |  |  |         |          |      |        | ł               | Remarks                        |  |                                      |              |                           |
| LO-10  | <ul> <li>D-10 V -I characteristics of Bipolar<br/>Junction Transistor (BJT) - Input ar<br/>Output Characteristics, Regions of<br/>Transistor operation - active,<br/>saturation &amp; cutoff, DC current<br/>gains- Alpha (α) and Beta (β),<br/>relation between alpha &amp; beta,<br/>Transistor as a Switch.</li> </ul> |                        |   | Interactive<br>classroom<br>lecture, PPT,<br>Video,<br>demonstration,<br>quiz,<br>assignments.         | Teacher will explain the<br>contents and provide handou<br>to students. Teacher will<br>conduct assignments/<br>quiz/tutorial to make student<br>practice their knowledge. | ts<br>s | 07       |      |        |                 | Text<br>Hand<br>charts<br>NPTE | Books,<br>outs, c<br>s, Vide<br>EL and | PPT,<br>halk bo<br>o lectu<br>others | oard,<br>re- |                           |
|        |   |                        |   |  | SCHEME OF ASSESSMENT   | •       |          |      |        |                 |                                |  |                                      |              |                           |
| S. No. | Method  | l of Assessment        |   | Descriptio   | on of Assessment   | Μ       | laxim    | um   | Mark   | 5               | Reso                           | urces l                                | Requir                               | ed           | External<br>/<br>Internal |
| LO-10  | End Se  | emester Theory<br>Exam | <ul> <li>Studen</li> <li>1. Dray conf</li> <li>2. Expl</li> <li>3. Simp (β).</li> </ul> | t will be asked<br>w the input output<br>iguration of trans<br>lain working of the<br>ple numerical on | <b>to</b> (and/or):<br>t characteristic for given<br>sistor.<br>ransistor as a switch.<br>calculation of Alpha (α) and Beta  | ta 10   |          |      | Questi | on pap<br>scale | er , Ra<br>e.                  | ting                                   | External                             |              |                           |
|        |   |                        | A   |  | STRUCTIONS FOR THE HOD/  | FACU    | JLTY (   | IF A | NY)    |                 |                                |  |                                      |              |                           |

| RGPV   | / (Diplo   | oma Wing ) Bhopa   | SCHEME F   | OR LEARNING   | Branch        | Code           | 2              | ourse Co   | ode  | CO<br>Code   | LO<br>Code  | Forn                            | nat No. <b>4</b>     |  |
|--------|--|--|--|---|---------------|----------------|----------------|--|--|--|---|---------------------------------|----------------------|--|
| COURS  | E NAME   | Basic Electronics  |  |   |               |                |                |  |  | -  |   |                                 |                      |  |
| CO Des | cription   | Compare different bipola   | ar junctiontransistors   |   |               |                |                |  |  |  |   |                                 |                      |  |
| LO Des | cription   | Plot the input and output  | characteristics of BJT for   | different configuration.  |               |                |                |  |  |  |   |                                 |                      |  |
|        | SCHEME OF STUDY  |  |  |   |               |                |                |  |  |  |   |                                 |                      |  |
| S. No. | L  | earning Content  | Teaching –<br>Learning Method  | Description of T-L<br>Process   | Teach<br>Hrs. | Pr<br>/Tu      | act.<br>t Hrs. | LRs Required                                     |  |  |   |                                 | Remarks              |  |
| LO-11  | Setup the<br>CC confi<br>obtain in<br>character<br>Kit/breac<br>Software | e BJT for CE, CB and<br>guration circuit and<br>put and output<br>ristics using Trainer-<br>lboard and/or Simulation<br>and Verify it. | Lab demonstration,<br>PPT , hands on<br>practice, lab<br>assignments.  | <ul> <li>Teacher with support<br/>from lab staff will<br/>demonstrate the<br/>procedure of lab<br/>experiments.</li> <li>Student will conduct<br/>lab assignment based<br/>on these experiments.</li> </ul> | 08            |                | 8              | Lal<br>Ha<br>tra<br>wi<br>ins<br>wi<br>so<br>int | b manua<br>indouts,<br>ainer ins<br>th meas<br>strumen<br>th releva<br>ftware a<br>cernet. | al, ch<br>expe<br>trum<br>uring<br>ts, cc<br>ant si<br>ind h | arts,<br>erimen<br>ents/k<br>g<br>omputo<br>imulat<br>igh spo | ital<br>:it<br>er<br>ion<br>eed |                      |  |
|        |  |  | sc   | HEME OF ASSESSMENT  |               |                |                |  |  |  |   |                                 |                      |  |
| S. No. | Met  | hod of Assessment  | Description  | of Assessment   | Ma:<br>N      | kimum<br>Iarks |                | Reso   | ources l   | Requ   | ired  | Ex<br>I                         | (ternal /<br>nternal |  |
| LO-11  | Pract  | ical test in laboratory  | <ul> <li>Student will be aske</li> <li>Set up circuit and performance</li> <li>characteristic for getransistor.</li> </ul> | ed to<br>plot the input output<br>iven configuration of   |               | 10             |                | Rub  | rics, Ra   | ting s   | scale   | F                               | External             |  |
|        |  |  | ADDITIONAL INSTRU  | ICTIONS FOR THE HOD/  | FACULT        | Y (IF AN       | NY)            |  |  |  |   | -                               |                      |  |

| RGPV   | / (Diplo   | oma Wing ) B   | Bhopal  | SCHEM   | E FOR LEARNING   | Branch C | ode     | Co. | urse Co                        | ode c   | CO<br>ode                      | LO<br>Code                 | Format No. <b>4</b>    |
|--|--|--|---|---|--|----------|---------|-----|--------------------------------|---|--------------------------------|----------------------------|------------------------|
| COURS  |  | Basic Electronic   |   |   |  |          |         |     |                                | -   |                                |                            |                        |
|  | cription   | Classify differen  | it type of f                                  | field effect transi   | stors (FET)  |          |         |     |                                |   |                                |                            |                        |
| <b>IO Description</b> Explain the working principle of FETs                                      |  |  |   |   |  |          |         |     |                                |   |                                |                            |                        |
| LO DES   | CUrescription Explain the working principle of FETS.                     |  |   |   |  |          |         |     |                                |   |                                |                            |                        |
| S. No. Learning Content Teaching –<br>Learning Method Teaching – Learning Process Hrs. /Tut Hrs. |  |  |   |   |  |          |         |     |                                | quii  | red                            | Remarks                    |                        |
| LO-12  | Types of F<br>with BJT,<br>FET: Oper<br>Pinch-off<br>MOSFET-<br>Enhancen | ET, Comparison of F<br>ation, V -I character<br>voltage,<br>Depletion and<br>nent type | ET I<br>istic, la<br>d<br>g<br>a              | nteractive<br>elassroom<br>ecture, PPT,<br>/ideo,<br>lemonstration,<br>juiz,<br>essignments.  | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>assignments/ quiz/tutorial<br>to make students practice<br>their knowledge. | 07       |         |     | Tex<br>Ha<br>boa<br>lec<br>oth | xt Books<br>ndouts, d<br>ard, char<br>ture- NF<br>ners. | s, PP<br>chall<br>ts, V<br>TEL | ΥΤ,<br>κ<br>/ideo<br>. and |                        |
|  |  |  | '   |   | SCHEME OF ASSESSMENT   |          |         |     |                                |   |                                |                            | · ·                    |
| S. No.   | Method   | of Assessment  |   | Descriptio  | n of Assessment  | Maxim    | um Mar  | ks  | Reso                           | ources l  | Requ                           | uired                      | External /<br>Internal |
| LO-12  | End Se   | emester Theory<br>Exam   | Student<br>1. Com<br>2. Draw<br>H<br>3. Expla | t will be asked<br>pare FET with B<br>VV-I characterist<br>FET.<br>ain the MOSFET<br>liagram. | <b>to</b> (and/or):<br>JT.<br>fic and explain operation of<br>C of given type with the help of   |          | 10      |     | Q                              | Duestion<br>Rating s                                    | pape                           | er,                        | External               |
|  |  |  | Α   | DDITIONAL INS   | STRUCTIONS FOR THE HOD/  | FACULTY  | (IF ANY | )   |                                |   |                                |                            |                        |

| RGPV   | ' (Diplo   | ma Wing ) Bl   | hopal   | SCHEM   | E FOR LEARNING<br>OUTCOME  | Branch<br>E O | Code        | Co<br>2        | ourse Co                       | ode  | CO<br>Code<br>5                    | LO<br>Code<br>13  | Format No. <b>4</b>      |  |
|--|--|--|---|---|--|---------------|-------------|----------------|--------------------------------|--|------------------------------------|-------------------|--------------------------|--|
| COURS  | E NAME   | <b>Basic Electronics</b>   | 1   |   |  | <u> </u>      |             |                |                                | - <u>-</u>   |                                    |                   |                          |  |
| CO Des   | cription   | Classify different   | type of f   | ield effect transi  | stors (FET)  |               |             |                |                                |  |                                    |                   |                          |  |
| <b>LO Description</b> Define CMOS, MESFET and UJT. |  |  |   |   |  |               |             |                |                                |  |                                    |                   |                          |  |
|  | SCHEME OF STUDY                                      |  |   |   |  |               |             |                |                                |  |                                    |                   |                          |  |
| S. No.   | Le   | earning Content  |   | Teaching –<br>Learning<br>Method  | Description of T-L<br>Process  | Teach<br>Hrs. | Pra<br>/Tut | act.<br>t Hrs. |                                | LRs R  | Remarks                            |                   |                          |  |
| LO-13  | Introducti<br>UJT (Uniju<br>Structural<br>of UJT, UJ | on to CMOS and MES<br>Inction Transistor) -<br>diagram of UJT, work<br>T as relaxation oscilla | FET. Ir<br>cl<br>king le<br>tor V<br>du<br>qi<br>as | nteractive<br>lassroom<br>ecture, PPT,<br>Video,<br>emonstration,<br>uiz,<br>ssignments.                          | Teacher will explain the<br>contents and provide<br>handouts to students.<br>Teacher will conduct<br>assignments/ quiz/tutorial<br>to make students practice<br>their knowledge. | 07            |             |                | Te:<br>Ha<br>boa<br>lec<br>oth | xt Book<br>indouts,<br>ard, cha<br>ature- N<br>hers. | ks, PP<br>chall<br>urts, V<br>PTEL | T,<br>ideo<br>and |                          |  |
|  |  |  |   |   | SCHEME OF ASSESSMENT   | •             |             |                |                                |  |                                    |                   |                          |  |
| S. No.   | Metho  | d of Assessment  |   | Descriptio  | n of Assessment  | Maxim         | um Ma       | arks           | R                              | esourc   | es Re                              | quire             | d External /<br>Internal |  |
| LO-13  | D-13 Mid Semester Theory Exam                        |  |   | <b>At will be asked</b><br>Explain CMOS v<br>Draw structural d<br>vorking of it.<br>Explain the work<br>scillator | <b>I to</b> (and/or):<br>with help of diagram.<br>iagram of UJT and explain<br>ing of UJT as relaxation  |               | 10          |                | Qu                             | uestion s  | paper<br>cale.                     | , Ratiı           | <sup>1g</sup> Internal   |  |
|  |  |  | AI  | DDITIONAL INS   | STRUCTIONS FOR THE HOD   | FACULT        | (IF AN      | IY)            |                                |  |                                    |                   |                          |  |

|  | (Diplo  | ma Wing \ P   | honal                                      | SCHEM   | E FOR LEARNING  | Bra           | anch Co    | de          | Co             | ourse Co                                       | ode   | CO<br>Code   | LO<br>Code                                | <b>/</b>               |
|--|---|---|--|---|---|---------------|------------|-------------|----------------|--|---|--|---|------------------------|
| KGPV   |   | ina wing j d  | порат                                      | (   | DUTCOME   | Ε             | 0          | 3           | 2              | 0  | 1   | 5  | 14  | Format No. 🕂           |
| COURS  | E NAME  | Basic Electronics   | 5  |   |   |               |            |             |                |  |   |  |   |                        |
| CO Des   | cription  | Classify different  | type of fi                                 | ield effect transis   | stors (FET)   |               |            |             |                |  |   |  |   |                        |
| <b>LO Description</b> Verify the characteristic of FETs and UJT. |   |   |  |   |   |               |            |             |                |  |   |  |   |                        |
|  | SCHEME OF STUDY   |   |  |   |   |               |            |             |                |  |   |  |   |                        |
| S. No.   | Le  | earning Content   |  | Teaching –<br>Learning<br>Method                                  | Description of T-L<br>Process   | Tea<br>Hrs    | ch<br>s.   | Pra<br>/Tut | act.<br>: Hrs. |  | LRs   | Requi  | red                                       | Remarks                |
| LO-14  | Assemble<br>character<br>and UJT<br>Kit/bread<br>Software | e the circuit and plo<br>istic of FET, MOSF<br>On Trainer-<br>lboard and/or Simul<br>and Verify it. | t V-I La<br>FET de<br>Pl<br>ation pr<br>la | ab<br>emonstration,<br>PT , hands on<br>ractice,<br>bassignments. | <ul> <li>Teacher with support<br/>from lab staff will<br/>demonstrate the<br/>procedure of lab<br/>experiments.</li> <li>Student will conduct lab<br/>assignment based on<br/>these experiments.</li> </ul> |               | -          | :           | 8              | La<br>Ha<br>ex<br>ins<br>co<br>rel<br>so<br>sp | b man<br>indout<br>perim<br>strume<br>easuri<br>strume<br>mpute<br>levant<br>ftware<br>eed in | ual, ch<br>ental t<br>ents/ki<br>ng<br>ents,<br>er with<br>simula<br>e and h<br>ternet | arts,<br>rainer<br>t with<br>ition<br>igh |                        |
|  |   |   |  |   | SCHEME OF ASSESSMEN   | IT            |            |             |                |  |   |  |   |                        |
| S. No.   | . No. Method of Assessment                                |   |  | Description   | of Assessment   | Maxir<br>m Ma | mu<br>irks |             | Resc           | ource  | es Rec  | luired   |   | External /<br>Internal |

| LO-14 | Practical test in laboratory | <ul><li>Student will be asked to</li><li>1. Assemble circuit ofFET, MOSFET and UJT and verify characteristic of it.</li></ul> | 15         | Rubrics, Rating scale | Internal |
|-------|------------------------------|---|------------|-----------------------|----------|
|       |                              | ADDITIONAL INSTRUCTIONS FOR THE HOL   | D/ FACULTY | (IF ANY)              |          |
|       |                              |   |            |                       |          |

#### Rajiv Gandhi Proudyogiki Vishwavidyalaya Office Complex, A-4 Gautam Nagar, Bhopal (M. P.) INTERNAL ASSESSMENT (PRACTICAL COMPONENT) MARKS

| Exam           | ination Centre  |                |           |               |        |                 |                          |               |     |  |  |  |
|----------------|---|----------------|-----------|---------------|--------|-----------------|--------------------------|---------------|-----|--|--|--|
| Brand          | ch  | EE,EEE,ETC,OPT | D,EINST   |               |        |                 |                          |               |     |  |  |  |
| Term           | / Semester  | II semester    |           | Name of       | Examin | ation           |                          |               |     |  |  |  |
| Cours          | se Code   | 201/           | C         | ourse Nan     | ne     | ВА<br><b>СО</b> | SIC ELECTRON<br>MPONENT) | NICS (PRACTIO | CAL |  |  |  |
| Marks Obtained |   |                |           |               |        |                 |                          |               |     |  |  |  |
|                |   |                | COI       | No.           | 3      | 5               |                          |               |     |  |  |  |
|                |   |                | LON       | No.           | 8      | 14              |                          |               |     |  |  |  |
|                |   |                | Max. N    | <b>/</b> arks | 15     | 15              |                          |               |     |  |  |  |
| S.<br>No.      | Enrollment No   | o. Stu         | dent Name |               |        |                 |                          |               |     |  |  |  |
| 1              |   |                |           |               |        |                 |                          |               |     |  |  |  |
| 2              | 2   |                |           |               |        |                 |                          |               |     |  |  |  |
| NOTE           | NOTE: Max. Marks for Internal Assessment Practical Component is 30. Marks obtained by the students will be proportionately reduced to 20 , while processing the result. |                |           |               |        |                 |                          |               |     |  |  |  |

| Rajiv Gandhi Proudyogiki Vishwavidyalaya<br>Office Complex, A-4 Gautam Nagar, Bhopal (M. P.)<br>INTERNAL ASSESSMENT (THEORY COMPONENT) MARKS |                |                 |        |                     |                |       |                                     |  |  |  |
|--|----------------|-----------------|--------|---------------------|----------------|-------|-------------------------------------|--|--|--|
| Exam   | ination Centre |                 |        |                     |                |       |                                     |  |  |  |
| Branch   |                | CSE,IT,CHM      |        |                     |                |       |                                     |  |  |  |
| Term / Semester  |                | II semester     |        | Name of Examination |                | ation |                                     |  |  |  |
| Course Code  |                |                 |        | Course Name         |                | BA    | ASIC ELECTRONICS (THEORY COMPONENT) |  |  |  |
|  |                |                 |        |                     | Marks Obtained |       |                                     |  |  |  |
|  |                | CC              |        | No.                 | 1              | 2     | 5                                   |  |  |  |
|  |                | LC              |        | No.                 | 1              | 4     | 13                                  |  |  |  |
|  |                |                 | Max. I | Marks               | 10             | 10    | 10                                  |  |  |  |
| S.<br>No.  | Enrollment No  | ). Student Name |        |                     |                |       |                                     |  |  |  |
| 1  |                |                 |        |                     |                |       |                                     |  |  |  |
| 2  |                |                 |        |                     |                |       |                                     |  |  |  |
| NOTE: Max. Marks for Internal Assessment Theory Component is 30.   |                |                 |        |                     |                |       |                                     |  |  |  |

NOTE: End Sem Practical Examination should be conducted for a Max Marks of 30