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| **LESSON PLAN** | | | |  |
| **Name of the Faculty** | | : RENU BALA |  |  |
| **Discipline** | | : ELECTRICAL ENGINEERING | |  |
| **Semester** | | : 5th |  |  |
| **Subject** | | : IECD |  |  |
| **Lesson Plan Duration** | | : 15 WEEKS(**(From August 2024 to November 2024)** | |  |
| **Work Load (Lecture/ Practical) per week (in hours)** | | : Theory- 04 |  |  |
| : Practical- 3 |  |  |
| **Week** | **Theory** | | **Practical** | |
| **Lecture Day** | **Topic** | **Practical Day** | **Topic** |
| **1st** | **1st** | Introduction to Subject and Applications | Ist | Power point presentation |
|
| **2nd** | Construction and working principles of an SCR, |
| **3rd** | Two transistor analogy and characteristics of SCR |
| **4th** | Construction, working principles of DIAC |
| **2nd** | **1st** | V-I characteristics of DIAC | Ist | To draw V-I characteristics of an SCR |
| **2nd** | Construction, working principles of TRIAC |
| **3rd** | V-I characteristics of TRIAC |
| **4th** | Quadriac |
| **3rd** | **1st** | Selection of heat sinks for SCR and TRIACS | Ist | Viva Voce and Practical file Evaluation |
| **2nd** | Study of triggering circuits |
| **3rd** | Methods of triggering a Thyristor. |
| **4th** | Commutation of Thyristors |
| **4th** | **1st** | UJT, its Construction, working principles | Ist | To draw V-I characteristics of a TRIAC |
| **2nd** | V-I characteristics of UJT |
| **3rd** | UJT relaxation oscillator |
| **4th** | Series operation of Thyristors |
| **5th** | **1st** | Parallel operation of Thyristors | Ist | To draw V-I characteristics of a DIAC |
| **2nd** | dv/dt and di/dt protection of SCR. |
| **3rd** | Applications of SCR, TRIACS and Quadriac such as light intensity control, speed control of DC |
| **4th** | universal motor, fan regulator, battery charger |
| **6th** | **1st** | Single phase half wave controlled rectifier with resistive | Ist | . To draw uni-junction transistor characteristics |
| **2nd** | Single phase half wave controlled rectifie inductive load |
| **3rd** | Concept of free wheeling diode. |
| **4th** | Single phase half controlled full wave rectifier |
| **7th** | **1st** | Contd | Ist | Viva Voce and Practical file Evaluation |
| **2nd** | Single phase fully controlled full wave rectifier |
| **3rd** | Single phase full wave centre tapped rectifier |
| **4th** | Three phase full wave half controlled bridge rectifier |
| **8th** | **1st** | Three phase full wave fully controlled bridge rectifier | Ist | Observe the output wave of an UJT relaxation oscillator |
| **2nd** | Contd |
| **3rd** | Inverter-introduction |
| **4th** | working principles, voltage and current driven inverter |
| **9th** | **1st** | series and parallel inverters and app. | Ist | Viva Voce and Practical file Evaluation |
| **2nd** | Choppers-introduction, types of choppers |
| **3rd** | Chopper working principles and applications |
| **4th** | Dual converters-introduction |
| **10th** | **1st** | Dual Conv. working principles and applications | Ist | Observe the wave shape across SCR and load of an illumination control circuit |
| **2nd** | Cyclo-converters |
| **3rd** | Working principles and applications |
| **4th** | Thyristor Control of Electric Drives |
| **11th** | **1st** | DC drives control | Ist | Fan speed regulator using TRIAC Quadriac (fabrication of this circuit) |
| **2nd** | Half/Full wave drives |
| **3rd** | Chopper drives |
| **4th** | AC drives control |
| **12th** | **1st** | Variable frequency AC drives | Ist | Speed-control of a DC shunt motor or universal motor |
| **2nd** | Voltage controlled inverter drives |
| **3rd** | Constant current inverter drives |
| **4th** | Cyclo convertors controlled AC drives |
| **13th** | **1st** | Slip control AC drives | Ist | To observe the output wave shape on CRO of (a) Single phase half controlled full wave rectifier(b)Single phase controlled rectifier |
| **2nd** | UPS online |
| **3rd** | UPS off line |
| **4th** | Storage devices (batteries) |
| **14th** | **1st** | SMPS | Ist | Viva Voce and Practical file Evaluation |
| **2nd** | CVT |
| **3rd** | Revision test- Chapter 1 |
| **4th** | Revision test- Chapter 2 |
| **15th** | **1st** | Revision test- Chapter 3 | Ist | INTERNAL PRACTICAL EXAMINATION |
| **2nd** | Revision test- Chapter 4 |
| **3rd** | Revision test- Chapter 5 |
| **4th** | MCQ QUIZ |
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