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| Discipline :**ELECTRICAL ENGINEERING** | Semester :**3rd** | Name of the Teaching Faculty: **SIDHARTH SETHI** |
| Subject:**ELEMENT OF ELECTRICAL ENGINEERING** | No. of days/per week class allotted:**04** | Semester From date : **01.09.2020**To Date:**20.02.2021** |
| **Week** | **Class Day** | **Theory Topics** |
| 1ST | 1ST | Conducting Materials: 1 . 1 Introduction 1 . 2 Resistivity, |
| 2ND | factors affecting resistivity 1 . 3 Classification of conducting materials into low-resistivity and high resistivity materials |
| 3RD | 1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel) |
| 4TH | 13 1 . 5 Stranded conductors 1 . 6 Bundled conductors |
| 2ND | 1ST | 1 . 7 Low resistivity copper alloys 1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury) |
| 2ND | 1 . 9 Superconductivity 1 . 10 Superconducting materials |
| 3RD | 1 . 11 Application of superconductor materials |
| 4TH | Semiconducting Materials: 2 . 1 Introduction 2 . 2 Semiconductors |
| 3RD | 1ST | 2 . 3 Electron Energy and Energy Band Theory |
| 2ND | 2 . 4 Excitation of Atoms 2 . 5 Insulators, Semiconductors and Conductors |
| 3RD | 2 . 6 Semiconductor Materials |
| 4TH | 2 . 7 Covalent Bonds 2 . 8 Intrinsic Semiconductors |
| 4TH | 1ST | 2 . 9 Extrinsic Semiconductors |
| 2ND | 2 . 10 N-Type Materials 2 . 11 P-Type Materials |
| 3RD | 2 . 12 Minority and Majority Carriers |
| 4TH | 2 . 13 Semi-Conductor Materials 2 . 14 Applications of Semiconductor materials |
| 5TH | 1ST | 2.14.1 Rectifiers 2.14.2 Temperature-sensitive resisters or thermistors 2.14.3 Photoconductive cells |
| 2ND | 2.14.4 Photovoltaic cells |
| 3RD | 2.14.5 Varisters 2.14.6 Transistors |
| 4TH | 2.14.7 Hall effect generators 2.14.8 Solar power |
| 6TH | 1ST | Insulating Materials: 3 . 1 Introduction 3 . 2 General properties of Insulating Materials |
| 2ND | 3.2.1 Electrical properties |
| 3RD | 3.2.2 Visual properties 3.2.3 Mechanical properties |
| 4TH | 3.2.4 Thermal properties 3.2.5 Chemical properties 3.2.6 Ageing |
| 7TH | 1ST | 3.2.4 Thermal properties 3.2.5 Chemical properties 3.2.6 Ageing |
| 2ND | 3.3.1 Introduction 3.3.2 Classification of insulating materials on the basis physical and chemical structure |
| 3RD | 3.4 Insulating Gases 3.4.1 Introduction. 3.4.2 Commonly used insulating gases chemical structure |
| 4TH | Dielectric Materials: 4.1 Introduction 4.2 Dielectric Constant of Permittivity |
| 8TH | 1ST | 4.3 Polarization  |
| 2ND | 4.4 Dielectric Loss |
| 3RD | 4.5 Electric Conductivity of Dielectrics and their Break Down |
| 4TH | 4.6 Properties of Dielectrics. |
| 9TH | 1ST | 4.7 Applications of Dielectrics. |
| 2ND | Magnetic Materials: 5.1 Introduction 5.2 Classification |
| 3RD | 5.2.1 Diamagnetism |
| 4TH | 5.2.2 Para magnetism |
| 10TH | 1ST | 5.2.3 Ferromagnetism |
| 2ND | 5.3 Magnetization Curve |
| 3RD | 5.4 Hysteresis |
| 4TH | 5.5 Eddy Currents |
| 11TH | 1ST | 5.6 Curie Point |
| 2ND | 5.7 Magneto-striction |
| 3RD | 5.8 Soft and Hard magnetic Materials |
| 4TH | 5.8.1 Soft magnetic materials |
| 12TH | 1ST | 5.8.2 Hard magnetic materials |
| 2ND | Materials for Special Purposes 6.1 Introduction  |
| 3RD | 6.2 Structural Materials |
| 4TH | 6.3 Protective Materials |
| 13TH | 1ST | 6.3.1 Lead |
| 2ND | 6.3.2 Steel tapes, wires and strips |
| 3RD | 6.4 Other Materials |
| 4TH | 6.4.1 Thermocouple materials |
| 14TH | 1ST | 6.4.2 Bimetals |
| 2ND | 6.4.3 Soldering Materials |
| 3RD | 6.4.4 Fuse and Fuse materials. |
| 4TH | 6.4.5 Dehydrating material. |
| 15TH | 1ST | TEST |
| 2ND | TEST |
| 3RD | TEST |
| 4TH | TEST |

**Teaching Faculty HOD , ELE Academic Co-ordinator**

**Principal**

**Government Polytechnic, Puri**