# ACADEMIC LESSON PLAN OF WINTER 2022

| Discipline: ELECTRICAL | Semester: 3rd Sem (Sec A) | Name of the Teaching Faculty: Sandeep Mohapatra |
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| Subject: Electrical Engineering Material | No. of days/per week class allotted: 4p/week | Semester From: 15th SEP 2022 to 22nd DEC 2022<br>No. of Weeks: 15 weeks |
| 1st | 1st | **Unit-1: CONDUCTING MATERIALS**<br>1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials. |
| | 2nd | 1.2Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel) |
| | 3rd | 1.3 Stranded Conductors |
| | 4th | 1.4 Bundle Conductors |
| 2nd | 1st | 1.5Low resistivity copper alloys |
| | 2nd | 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury) |
| | 3rd | 1.7Super conductivity, Superconducting Materials |
| | 4th | 1.8 Application of Super Conductor materials |
| 3rd | 1st | **UNIT-2:SEMICONDUCTING MATERIALS**<br>2.1 Introduction, Semiconductors |
| | 2nd | 2.2 Electron Energy and Energy band theory |
| | 3rd | 2.3 Excitation of atoms |
| | 4th | 2.4 Insulators, semiconductors and conductors |
| 4th | 1st | 2.4 Insulators, semiconductors and conductors |
| | 2nd | 2.5 Semiconductor Materials |
| | 3rd | 2.6Co-valent bonds |
| | 4th | 2.7 Intrinsic semiconductors, Extrinsic semiconductors |
| 5th | 1st | 2.8 N-Type materials, P-Type materials |
| | 2nd | 2.9 Minority and Majority carriers |
| | 3rd | 2.10 Semiconductor materials, Application of semiconductor materials |
| | 4th | Application of Semiconducting materials |
| 6th | 1st | **UNIT-3:INSULATING MATERIALS**<br>3.1Introduction, General properties of insulating materials(contd.) |
| | 2nd | 3.2 General properties of insulating materials |
| | 3rd | 3.3 Insulting materials –classification, properties and application |
| | 4th | 3.3 introduction, Classification of insulating materials based on physical and chemical properties |
| 7th | 1st | 3.3 Classification of insulating materials based on physical and chemical properties |
| | 2nd | 3.4 Insulating Gases |
| | 3rd | 3.4 Commonly used insulating gases |
| | 4th | **UNIT-4: DIELECTRIC MATERIAL**<br>4.1 Introduction |
| 8th | 1st | 4.2Dielectric constant of permittivity |
| | 2nd | 4.3 Polarization |
| | 3rd | 4.3 Polarization |
| | 4th | 4.4 Dielectric loss |
| 9th | 1st | 4.5Electric Conductivity of Dielectrics and their breakdown |
| | 2nd | 4.5 Electric Conductivity of Dielectrics and their breakdown |
| | 3rd | 4.6properties of Dielectrics |
| | 4th | 4.7 Application of Dielectrics |
| 10th | 1st | **UNIT-5:MAGNETIC MATERIALS**<br>5.1 Introduction |
| | 2nd | 5.2 Classification |
| | 3rd | 5.2 Diamagnetism |

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|---|---|---|
| 11th | 1st | 5.2 Ferromagnetism |
| | 2nd | 5.3 Magnetization Curve |
| | 3rd | 5.4Hysteresis |
| | 4th | 5.4 Hysteresis(contd.) |
| 12th | 1st | 5.5 Eddy currents |
| | 2nd | 5.6 Curie point, Magneto-striction |
| | 3rd | 5.7 Soft magnetic materials |
| | 4th | 5.7 Soft magnetic materials |
| 13th | 1st | 5.8 Hard magnetic materials |
| | 2nd | 5.8 Hard magnetic materials |
| | 3rd | **UNIT-6:MATERIALS FOR SPECIAL PURPOSES**<br>6.1Introduction |
| | 4th | 6.2 structural materials |
| 14th | 1st | 6.3 protective materials: lead |
| | 2nd | 6.3 steel tapes |
| | 3rd | 6.3 wires and strips |
| | 4th | 6.4 Other Materials: Thermocouple materials |
| 15th | 1st | 6.4 Bimetals |
| | 2nd | 6.4soldering materials |
| | 3rd | 6.4 Fuse and fuse materials |
| | 4th | 6.4 Dehydrating materials |

Signature of Teaching Faculty

# ACADEMIC LESSON PLAN OF WINTER 2022

| Discipline: ELECTRICAL | Semester: 3rd Sem (Sec B) | Name of the Teaching Faculty: Sandeep Mohapatra |
|---|---|---|
| Subject: Electrical Engineering Material | No. of days/per week class allotted: 4p/week | Semester From: 15th SEP 2022 to 22nd DEC 2022<br>No. of Weeks: 15 weeks |
| 1st | 1st | **Unit-1: CONDUCTING MATERIALS**<br>1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials. |
| | 2nd | 1.2Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel) |
| | 3rd | 1.3 Stranded Conductors |
| | 4th | 1.4 Bundle Conductors |
| 2nd | 1st | 1.5Low resistivity copper alloys |
| | 2nd | 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury) |
| | 3rd | 1.7Super conductivity, Superconducting Materials |
| | 4th | 1.8 Application of Super Conductor materials |
| 3rd | 1st | **UNIT-2:SEMICONDUCTING MATERIALS**<br>2.1 Introduction, Semiconductors |
| | 2nd | 2.2 Electron Energy and Energy band theory |
| | 3rd | 2.3 Excitation of atoms |
| | 4th | 2.4 Insulators, semiconductors and conductors |
| 4th | 1st | 2.4 Insulators, semiconductors and conductors |
| | 2nd | 2.5 Semiconductor Materials |
| | 3rd | 2.6Co-valent bonds |
| | 4th | 2.7 Intrinsic semiconductors, Extrinsic semiconductors |
| 5th | 1st | 2.8 N-Type materials, P-Type materials |
| | 2nd | 2.9 Minority and Majority carriers |
| | 3rd | 2.10 Semiconductor materials, Application of semiconductor materials |
| | 4th | Application of Semiconducting materials |
| 6th | 1st | **UNIT-3:INSULATING MATERIALS**<br>3.1Introduction, General properties of insulating materials(contd.) |
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| | 3rd | 3.3 Insulting materials –classification, properties and application |
| | 4th | 3.3 introduction, Classification of insulating materials based on physical and chemical properties |
| 7th | 1st | 3.3 Classification of insulating materials based on physical and chemical properties |
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| | 3rd | 5.2 Diamagnetism |

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