

**LESSON PLAN**

**JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA**

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| Name of the Faculty: ASTAMITA MISHRA                 | Academic Year: 2022-2023                       |
| Course No.: Th 2                                     | Course name: <b>Circuit and Network Theory</b> |
| Programe: Diploma                                    | Branch: Electrical Engg                        |
| Year/Sem: 2 <sup>nd</sup> Year / 3 <sup>rd</sup> Sem | Section: E1                                    |

| <b>Wee<br/>k<br/>No.</b> | <b>Period</b> | <b>Time<br/>(min)</b> | <b>Unit/<br/>Chapt<br/>er</b> | <b>Topic to be Covered</b>                                    | <b>Teaching<br/>Method</b> |
|--------------------------|---------------|-----------------------|-------------------------------|---|----------------------------|
| 1 <sup>st</sup>          | 1.            | 55min                 | 1                             | Introduction, magnetizing force, mmf, flux and their relation | Black board                |
|                          | 2.            | 55min                 | 1                             | Permeability, reluctance and permeance                        | Black board                |
|                          | 3.            | 55min                 | 1                             | Solve numerical problem                                       | Black board                |
|                          | 4.            | 55min                 | 1                             | Analogy between electric and magnetic circuit                 | Black board                |
|                          | 5.            | 55min                 | 1                             | Series and parallel magnetic circuit B-H curve                | Black board                |
| 2 <sup>nd</sup>          | 6.            | 55min                 | 1                             | B-H curve ,Hysteresis loop                                    | Black board                |
|                          | 7.            | 55min                 | 2                             | Self inductance and mutual inductance                         | Black board                |
|                          | 8.            | 55min                 | 2                             | Conductively coupled circuit and mutual inductance            | Black board                |
|                          | 9.            | 55min                 | 2                             | Dot convention, coefficient of coupling                       | Black board                |
|                          | 10.           | 55min                 | 2                             | Series and parallel connection of coupled inductors           | Black board                |
| 3 <sup>rd</sup>          | 11.           | 55 min                | 2                             | Numerical problems solving                                    | Black board                |
|                          | 12.           | 55 min                | 3                             | Types of circuit elements                                     | Black board                |
|                          | 13.           | 55min                 | 3                             | Mesh analysis   | Black board                |
|                          | 14.           | 55 min                | 3                             | Problems solving  | Black board                |
|                          | 15.           | 55 min                | 3                             | Super mesh analysis   | Black board                |
| 4 <sup>th</sup>          | 16.           | 55min                 | 3                             | Node analysis   | Black board                |
|                          | 17.           | 55min                 | 3                             | Super node analysis   | Black board                |
|                          | 18.           | 55 min                | 3                             | Source transformation techniques                              | Black board                |
|                          | 19.           | 55 min                | 3                             | Numerical problems solving                                    | Black board                |
|                          | 20.           | 55 min                | 3                             | Numerical problems solving                                    | Black board                |
| 5 <sup>th</sup>          | 21.           | 55 min                | 4                             | Star to delta and delta to star transformation                | Black board                |
|                          | 22.           | 55min                 | 4                             | Superposition theorem   | Black board                |
|                          | 23.           | 55min                 | 4                             | Thevenins theorem   | Black board                |
|                          | 24.           | 55 min                | 4                             | Nortons theorem   | Black board                |
|                          | 25.           | 55 min                | 4                             | Maximum power transfer theorem                                | Black board                |
| 6 <sup>th</sup>          | 26.           | 55 min                | 4                             | Numerical problems solving                                    | Black board                |
|                          | 27.           | 55 min                | 4                             | Numerical problems solving                                    | Black board                |
|                          | 28.           | 55 min                | 4                             | Numerical problems solving                                    | Black board                |
|                          | 29.           | 55 min                | 5                             | Ac through RL, RC, RLC circuit                                | Projector                  |
|                          | 30.           | 55 min                | 5                             | Ac through RL, RC, RLC circuit                                | Projector                  |

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| 7 <sup>th</sup>  | 31. | 55 min | 5 | Numerical problems solving  | Black board |
|                  | 32. | 55 min | 5 | Numerical problems solving  | Black board |
|                  | 33. | 55 min | 5 | RLC series circuit  | Projector   |
|                  | 34. | 55 min | 5 | RLC parallel circuit  | Projector   |
|                  | 35. | 55 min | 5 | Power factor, power triangle, active, reactive, apparent power    | Black board |
| 8 <sup>th</sup>  | 36. | 55 min | 5 | Series resonance, parallel resonance                              | Black board |
|                  | 37. | 55 min | 5 | Band width, selectivity, Q factor                                 | Black board |
|                  | 38. | 55 min | 5 | Numerical problems solving  | Black board |
|                  | 39. | 55 min | 6 | Poly phase system, phase sequence                                 | Black board |
|                  | 40. | 55 min | 6 | Relation between phase and line quantity in star and delta system | Black board |
| 9 <sup>th</sup>  | 41. | 55 min | 6 | Power equation  | Black board |
|                  | 42. | 55 min | 6 | Measurement of 3 phase power by 2 watt meter method               | Black board |
|                  | 43. | 55 min | 6 | Numerical problems solving  | Black board |
|                  | 44. | 55 min | 7 | Steady state and transient response                               | Black board |
|                  | 45. | 55 min | 7 | Response to RL, RC, RLC circuit to dc condition                   | Black board |
| 10 <sup>th</sup> | 46. | 55 min | 7 | Numerical problems solving  | Black board |
|                  | 47. | 55 min | 7 | Numerical problems solving  | Black board |
|                  | 48. | 55 min | 8 | Z parameters, Y parameters  | Black board |
|                  | 49. | 55 min | 8 | ABCD parameters, h parameters                                     | Black board |
|                  | 50. | 55 min | 8 | Interrelationship of different parameters                         | Black board |
| 11 <sup>th</sup> | 51. | 55 min | 8 | T and pie representation  | Black board |
|                  | 52. | 55 min | 8 | Numerical problems solving  | Black board |
|                  | 53. | 55 min | 8 | Numerical problems solving  | Black board |
|                  | 54. | 55 min | 9 | Definition, classification of filters                             | Black board |
|                  | 55. | 55 min | 9 | Cut off frequency   | Black board |
| 12 <sup>th</sup> | 56. | 55 min | 9 | Constant K low pass, high pass filter                             | Black board |
|                  | 57. | 55 min | 9 | Constant K band pass, band stop filter                            | Black board |
|                  | 58. | 55 min | 9 | Numerical problems solving  | Black board |
|                  | 59. | 55 min |   | Revision of all topics  | Black board |
|                  | 60. | 55 min |   | Revision of all topics  | Black board |

Reference :

1. Circuit & Networks by A.Sudhakar & Shyam Mohan S Palli , TMH Publication.
2. Network Analysis & Synthesis by B.R. Gupta, S.Chand Publication .
3. Electrical Technology – Vol – I by B.L. Thereja , S. Chand Publication.