# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.)

A Govt. Added UGC Autonomous and NAAC Accredited Institute, Affiliated to R.G.P.V, Bhopal

**DEPARTMENT OF ELECTRONICS ENGINEERING**

# Multiple Mode Teaching Learning Pattern

| Name of Course with Code: Network Theory (140123) | | Class:B. Tech. I Year (EC Section-B) | | Session: November 2022 – March 2023 | |
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| **S. No.** | **Unit** | **Content to be Covered** | **Teaching Session** | | **Mode** |
| 1. | Unit 1 | Introduction to Circuit Elements | 1 | | Offline & Open discussions |
| 2. | | Characterization of Resistors, Capacitors & Inductors in Terms of their linearity & time dependence features | 2 | | Offline & activity based learning |
| 3. | | Characteristics of Independent & Dependent Sources | 3 | | Offline&Open discussions |
| 4. | | KCL & KVL for circuits with dependent & independent sources | 4-5 | | Offline& Experiment withproblem solvingin groupbasedlearning |
| 5. | | Dot convention for coupled inductor and their characteristics | 6 | | Online&demonstrationbase dlearning |
| 6. | | co-efficient of coupling | 7 | | Offline&Open discussions |
| 7. | Unit 2 | Superposition theorem | 8 | | Offline & problem solving based learning |
| 8. | | Thevenin Theorem | 9 | | Offline & problem solving based learning |
| 9. | | Norton Theorem | 10 | | Offline & problem solving based learning |
| 10. | | Milliman Theorem | 11 | | Online&demonstrationbase dlearning |
| 11. | | Reciprocity Theorem | 12 | | Offline & problem solving based learning |
| 12. | | Maximum power transfer theorem | 13,14 | | Offline & problem solving based learning |
| 13. | | Theorem equivalent circuits based problems | 15,16 | | Offline& Experiment withproblem solvingin groupbasedlearning |
| 14. | Unit 3 | The Laplace transform | 17 | | Offline& Onsite/ field visit based Learning |
| 15. | | use of Laplace transform for the solution of integro differential equation | 18 | | Offline& Onsite/ field visit based Learning |
| 16. | | Initial and final value theorem | 19 | | Offline&Open discussions |
| 17. | | Transforms of wave forms synthesized with step, Ramp functions. | 20 | | Online&demonstrationbase dlearning |

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| 18. | | Transforms of wave forms synthesized with gate and sinusoidal functions. | 21-22 | Offline& Onsite/ field visit based Learning |
| 19. | | Transient analysis, Transients in RL, RC circuits, initial conditions, time constants | 23 | Offline&Open discussions |
| 20. | | Transient analysis, Transients in RLC circuits, initial conditions, time constants | 24 | Online&demonstrationbase dlearning |
| 21. | Unit 4 | Steady state analysis – concept of phasor and vector | 25-26 | Online&demonstrationbasedl earning |
| 22. | | Steady state analysis – concept of impedance and admittance | 27 | Offline&Opendiscussions |
| 23. | | Node and mesh analysis of RL, RC and RLC networks with sinusoidal and driving sources | 28 | Online&demonstrationbasedl earning |
| 24. | | Resonance and Q-factor. | 29 | Online&demonstrationbasedl earning |
| 25. | | Concept of Ports | 30 | Offline&Open discussions |
| 26. | | Network functions of one port & two ports | 31 | Offline & activity based learning |
| 27. | | Calculation of network functions for one port | 32 | Online&demonstrationbase dlearning |
| 28. | | Calculation of network functions for two port | 33 | Offline& Experiment withproblem solvingin groupbasedlearning |
| 29. | Unit 5 | Pole & zeros of network of different kinds | 34 | Offline&Open discussions |
| 30. | | Two port parameters – Z& Y Parameters | 35 | Offline& Onsite/ field visit based Learning |
| 31. | | Two port parameters –hybrid and chain Parameters | 36 | Offline& Onsite/ field visit based Learning |
| 32. | | Relationship between Parameters | 37-38 | Offline&Open discussions |

| Online | Offline | | | | | | |
|---|---|---|---|---|---|---|---|
| | Black Board Teaching | Group based Learning | Learning through projects | Learning through demonstration | Learning through experimentat ion | Activity based Learning | Onsite/field based learning |
| 20.93% | 69.77% | 37.21% | 13.95 | 27.90% | 48.84.% | 13.95% | 09.30% |

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