**D-1**

NIT’s LATE ANNASAHEB PATIL POLYTECHNIC, NASHIK

Maharashtra State Board of Technical Education

Academic Year : 2020-21

**TEACHING PLAN (TP)**

**Name of the Institute:** Late Annasheb (NIT’S) Polytechnic(1479), Nashik. **Name of the Subject:** Electrical Circuits & Network **(***ECN***) Institute Code:** 0078 **Subject Code:** 22330

**Name of the Program:** Electronics & Telecommunication (EJ) **Name of the Faculty:** Mrs.A.G.Bhagwat

**Semester:** Third (I Scheme) **Probable / Actual Hrs Available:** 48

# Course Outcomes (COs):

* 1. Check the working of single phase A.C. Circuits.
  2. Check the resonance condition of electric / electronic circuits.
  3. Check the functionality using the principles of circuit analysis
  4. Use network theorems to determine the various parameters in circuits.
  5. Use two port networks to determine the circuit parameters.

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| **Chapter No. (Allocated Hrs)** | **CO**  **No.** | **UO**  **No.** | **Title/Details** | **Plan** | | | **Actual Execution** | | | **Teaching Method/ Media** | **Remarks** |
| **From** | **To** | **No. of Lect.** | **From** | **To** | **No. of Lect.** |
| **01**  **(10)** | **CO 303.1** | **Unit-1** | **SINGLE PHASE A.C.CIRCUITS** | | | | | | |  |  |
| 1a | Series A.C. Circuits: R-L, R-C and R-L-C Circuits | 15/06/2020 | 15/06/2020 | 01 |  |  |  | Video lectures using ICT tools , PPT, PDF |  |
| 1b | Impedance, Reactance, phasor diagram, impedance triangle, power factor. | 16/06/2020 | 16/06/2020 | 01 |  |  |  |  |
| 1c | Active ( real ) power, Apparent power, Reactive power, power triangle. | 17/06/2020 | 17/06/2020 | 01 |  |  |  |  |
| 1c | A.C..Series circuit by using complex algebra. | 22/06/2020 | 22/06/2020 | 01 |  |  |  |  |

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|  |  | 1d | Parallel A.C.Circuits: Resistances in parallel with pure inductance and capacitance, series combination of resistance and inductance in parallel with capacitance. | 23/06/2020  24/06/2020  29/06/2020 | 23/06/2020  24/06/2020  29/06/2020 | 03 |  |  |  | Ref.book (Electrical Tech.Vol-I) |  |
| 1e/1f | Concept of admittance, conductance and susceptance. | 30/06/2020 | 30/06/2020 | 01 |  |  |  |  |
| 1g | Concept of initial and final condition in switching circuits , Meaning of t=0, t=0+ and t=∞, R,L and C at initial and final conditions. | 01/07/2020  06/07/2020 | 01/07/2020  06/07/2020 | 02 |  |  |  |  |
| **02**  **(10)** | **CO 303.2** | **Unit-2** | **RESONANCE IN SERIES AND PARALLEL CIRCUITS** | | | | | | |  |  |
| 2a | Series and parallel resonance | 07/07/2020 | 07/07/2020 | 01 |  |  |  | Video lectures using ICT tools , PPT, PDF  Ref.book (Basic Electrical Engineering) |  |
| 2a | Impedance and phase angle of a series and parallel resonant circuits. | 08/07/2020  13/07/2020 | 08/07/2020  13/07/2020 | 02 |  |  |  |  |
| 2b | Voltage and current in a series and parallel resonant circuits. | 14/07/2020  15/07/2020 | 14/07/2020  15/07/2020 | 02 |  |  |  |  |
| 2c | Bandwidth of a RLC circuit (Series and parallel resonance ) | 20/07/2020  21/07/2020 | 20/07/2020  21/07/2020 | 02 |  |  |  |  |
| 2c | Quality Factor (Q) and its effect on bandwidth (Series and parallel resonance) | 22/07/2020  27/07/2020 | 22/07/2020  27/07/2020 | 02 |  |  |  |  |
| 2d | Magnification in series and parallel resonance circuits. | 28/07/2020 | 28/07/2020 | 01 |  |  |  |  |
| **03**  **(10)** | **CO 303.3** | **Unit-3** | **PRINCIPLES OF CIRCUIT ANALYSIS** | | | | | | |  |  |
| 3a | Source transformation | 29/07/2020  03/08/2020 | 29/07/2020  03/08/2020 | 02 |  |  |  | Video lectures using ICT tools , PPT, PDF |  |
| 3b | Star / Delta and Delta /Star transformation | 04/08/2020  05/08/2020  10/08/2020  11/08/2020 | 04/08/2020  05/08/2020  10/08/2020  11/08/2020 | 04 |  |  |  |  |

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|  |  | 3c | Mesh analysis | 12/08/2020  17/08/2020 | 12/08/2020  17/08/2020 | 02 |  |  |  | Ref.book (Basic Electrical Engineering) |  |
| 3d | Node analysis | 18/08/2020  19/08/2020 | 18/08/2020  19/08/2020 | 02 |  |  |  |  |
| **04**  **(12)** | **CO 303.4** | **Unit-4** | **NETWORK THEOREMS** | | | | | | |  |  |
| 4a | Superposition theorem for both AC voltage and DC source. | 24/08/2020  25/08/2020  26/08/2020 | 24/08/2020  25/08/2020  26/08/2020 | 03 |  |  |  | Video lectures using ICT tools , PPT, PDF  Ref.book (Electrical Tech.Vol-II) |  |
| 4b | Thevenin’s theorem | 31/08/2020  01/09/2020  02/09/2020 | 31/08/2020  01/09/2020  02/09/2020 | 03 |  |  |  |  |
| 4c | Norton’s theorem | 07/09/2020  08/09/2020 | 07/09/2020  08/09/2020 | 02 |  |  |  |  |
| 4d | Maximum power transfer theorem | 09/09/2020  14/09/2020 | 09/09/2020  14/09/2020 | 02 |  |  |  |  |
| 4e | Reciprocity theorem | 15/09/2020  16/09/2020 | 15/09/2020  16/09/2020 | 02 |  |  |  |  |
| **05**  **(06)** | **CO 303.5** | **Unit-5** | **TWO PORT NETWORKS** | | | | | | |  |  |
| 5a | Significance of two port network | 21/09/2020 | 21/09/2020 | 01 |  |  |  | Video lectures using ICT tools , PPT, PDF  Ref.book (Electrical Tech.Vol-II) |  |
| 5b | Open circuit (Z) and short circuit (Y) Parameters. | 22/09/2020  23/09/2020 | 22/09/2020  23/09/2020 | 02 |  |  |  |  |
| 5c | Transmission (ABCD) parameters. | 28/09/2020 | 28/09/2020 | 01 |  |  |  |  |
| 5d | T and π representation of circuits. | 29/09/2020 | 29/09/2020 | 01 |  |  |  |  |
| 5e | Reciprocal and symmetrical two port network (no derivation) | 30/09/2020 | 30/09/2020 | 01 |  |  |  |  |

# Ms. A.G. Bhagwat Prof. S.K. Khaire

**Name & Signature of Faculty Name & Signature of HOD**