SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES, CHITTOOR -517127
(AUTONOMOUS)
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

B.TECH II-I SEM (E.E.E)	**L**	**T**	**P**	**C**
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SUB CODE: 16EEE211

NETWORK THEORY

Course objectives:

- To analyze phasor diagrams of three phase circuits
- To analyze DC and AC transients
- To impart knowledge on graph theory of networks
- To design and analyze two port networks
- To educate design of filters and attenuators

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UNIT I -THREE PHASE CIRCUITS
Phase sequence – star and delta connection-relation between line and phase voltages and currents in balanced systems-analysis of balanced and unbalanced three phase circuits – measurement of active and reactive power- Two-wattmeter method of measurement of three phase power- Analysis of unbalanced three phase circuits loop method-applications of Millman's theorem-star delta transformation technique.

UNIT II- TRANSIENT ANALYSIS
Transient response of RL, RC, RLC Series circuits for DC excitation & sinusoidal excitations –Initial conditions – solution method using differential equations and Laplace transforms response of RL and RC networks to pulse excitation.

UNIT III –NETWORK TOPOLOGY
Definitions- graph, tree, basic cut set, and basic tie set matrices for planar networks-loop and nodal methods of analysis of networks with dependent and independent voltage and current sources-duality and dual networks.

UNIT IV -TWO PORT NETWORKS
Two port network parameters-Z, Y, ABCD and hybrid parameters and their relations. Concept of transformed network-two port network parameters using transformed variables-cascaded networks.

UNIT V –FILTERS & SYMMETRICAL ATTENUATORS
Filters-Constant-K Low pass filter, High pass filter - m –derived, T-section-band pass filter and band elimination filter. Symmetrical Attenuators-T-type Attenuators, π-Type Attenuators, Bridged T type attenuator-Lattice Attenuators.

Course Outcomes:

After successful completion of the course, students will be able to:

- Analyze ploy phase circuits
- Analyse transient response of DC and AC circuits
- Understand network topology

- Apply two port networks
- Analyse filters and attenuators

Text Books:

1. Network Analysis by M.E.VanValkenberg,prantice hall India,3rd edition
2. Electric Circuit Analysis by C.L.Wadhwa,new age international

References:

1. Engineering Circuit Analysis by William Hayt and Jack E.Kemmerly,McGraw Hill Company,6th edition.
2. Network Theory by Srinivasan
3. Network Theory 3000 solved problems by Schaum series

University Nominee	**Subject Expert**	**Subject Expert**
Dr.G.V.Marutheswar Professor, EEE Dept. S.V.U CE Tirupathi	Dr.T.Gowri Manohar Professor, EEE Dept. S.V.U.C.E,Tirupathi	Dr. V.Rajnikanth Professor,Dept. of EEE, S.K.I.T, SriKalahasti

Industry Expert	**Alumni Student**	**Dept. BOS Chairman**
Mr. K.Somashekar M.Tech SE in Electrical department SAPA Alluminium company, Kuppam	Mr.K. Hemachandra Reddy Assistant Professor,Dept. of EEE, REVA University,Bangalore.	Prof. Ramesh Halakurki HOD EEE SITAMS, Chittoor