Course Name	Electrical Circuits
Prerequisite course	Differential Equations
Corequisite course	
References	1. Basic Circuit Theory, Charles A. Desoer and Ernest S. Kuh, McGraw-Hill Book Company, 1969. 2. Introduction to Electric Circuits, Richard C. Dorf, James A. Svoboda, John Wiley & Sons, 8th edition, 2010. 3. 3. Electric Circuits, James W. Nilsson, Susan A. Riedel, Pearson Education, 10th edition, 2014. 4. 4. Linear Circuits: Time Domain, Phasor and Laplace Transform Approaches, Raymond A. DeCarlo, Pen-Min Lin, Kendall Hunt Publishing Company, 3rd edition, 2009. 5. 5. Fundamentals of Electric Circuits, Charles K. Alexander, Matthew N.O. Sadiku, McGraw-Hill Education, 5th edition, 2012 .
Course instructor	Rasoul Dalirrooy fard
Syllabus	1. Circuit Elements and their modelling and Resistive Networks: Compressed Elements and Circuits, Linear & Nonlinear Resistive, Linear & Nonlinear Capacitive, Linear & Nonlinear Inductance, Independent & Dependent Sources (Current & Voltage). Kirchhoff 's laws , waves figure , Power and Energy , Methods of Analysis of Node & Mesh in Resistive Networks , Thevenin's & Norton's theorems , Superposition's law and Symmetric in Analysis of Resistive Networks , Operational Amplifier and Linear Applications. 2. Analysis of Differential Equations with Constant Coefficients 3. Analysis of First Order Circuit : Transient Response and Steady State Response, The Step Response , The Impulse Response. 4. Analysis of Second Order Circuits: Transient Response and Steady State Response , The Step Response , The Impulse Response , Oscillation . 5. Application of Laplace Transform and Sinusoidal Steady State Analysis : Laplace Transform & their Application in Electrical Circuits, Impedance & Admittance Concepts , Frequency analysis , Transfer Function & Frequency Response . 6. Ac Power in the Sinusoidal Steady State: Active Power, Effective Values, Maximum Power 's Theorem. 7. Two Port Networks and their Representations