

SEMESTER <i>First</i>	DEPARTMENT <i>General Engineering</i>	COURSE TITLE <i>Electrical Circuits I</i>
COURSE CODE <i>EP107</i>	HOURS: 3 UNITS: 3	COURSE SPECIFICATIONS <i>Theoretical Contents</i>
1. Importance of The Ohm's Law in D.C. Circuits: <ul style="list-style-type: none"> ➤ Resistivity and conductivity. ➤ Definition of Ohm's Low. ➤ Study the effect of temperature on resistance. ➤ Study the D.C. circuit containing the independent voltage sources of D.C. ➤ Study the D.C. circuit containing the independent current sources of D.C. ➤ D.C. circuit parallel and series connections. ➤ Analysis of D.C. circuit using (Y) and (Y) transformation. 		
2. The Main Methods Used in Analyzing The Electrical Circuits: Study and analysis of the following: <ul style="list-style-type: none"> ➤ D.C. circuit using Kirchhoff's voltage and current laws. ➤ Equivalent resistance. ➤ Voltage and current dividers. ➤ Maximum power transfer. ➤ Thevenin's equivalent and application on D.C. circuit. ➤ Norton's equivalent and application on D.C. circuit. ➤ The D.C. circuit analysis using sources transformation. ➤ The D.C. circuit analysis using Mesh analysis. ➤ The D.C. circuit analysis using Nodal analysis. ➤ The D.C. circuit containing dependent voltage sources. ➤ The D.C. circuit containing dependent current sources. 		
3. Study The Active and Passive Elements in DC Circuits.		
4. Power Calculations of Elements in D.C. Circuit.		

5. *Energy Storage Elements:*

- Capacitors connections.
- Inductors connections.

6. *Transient and Steady State Response in DC circuits:*

- First order circuits.
- Second order circuits.

Reference :

1. *Engineering Circuit Analysis*, William H. Hayt
2. *Elements of Electrical Networks*; Khanna Publishers Delhi; Dr. P. Narayana Reddy