

UNIT CODE	EEMQ2131
UNIT NAME	ELECTRICAL ENGINEERING PRINCIPLES
LECTURER	Eng. BENARD MUMO MAKAA, PE. Email:ben@benardmakaa.com Website:www.benardmakaa.com Phone.0716518555

Course Textbooks	
1	John Bird, (2017), <i>Electrical Circuit Theory and Technology</i> , Routledge.
2	Ozgur Ergul (2017), <i>Introduction to Electrical Circuit Analysis</i> , Wiley.
3	Robert Boylestad,(2010), <i>Introductory Circuit Analysis</i> , Pearson

COURSE OUTLINE			
CONTENT			HOURS
1	Introduction to electric circuit theory	Units associated with basic electrical quantities, Standard symbols for electrical components, Potential difference and resistance, and current, Basic electrical measuring instruments, Ohm's law, Resistivity, Temperature coefficient, Conductors and insulators, Electrical power and energy, Kirchhoff's laws	6
2	Electrical Circuits Networks	Series circuits, Parallel networks/ Circuits, Alternating current theory(Introduction)	3
3	Capacitors and Inductors	Capacitors, Energy Stored in a capacitor, Properties of a capacitor, Capacitors	6

		connected in parallel and series, Inductor, Energy stored in an inductor, Properties of an inductor, Applications, AC Resistance, Impedance.	
4	Electrical Energy & Power	Importance of Electrical Energy, Generation of Electrical Energy, Sources of energy, Unit of electrical energy, Types of fuels, Electrical Power Supply, Single phase, Three Phase, Electrical transmission, Distribution systems	6
CAT 1			
5	Electrical Power Generation	Generating Stations, Steam Power Station (Thermal Station), Hydro-electric Power Station, Diesel Power Station, Nuclear Power Station, Gas Turbine Power Plant, Comparison of the various power plants,	6
6	Electrical Supply and Distribution	Single Phase Electric Power, Three Phase Electric Power, Private Sub-station/transformer, Electricity Intake to a Building, Distribution Board, Power Distribution Circuits, Manholes, Service Boxes.	6
7	Single Phase AC Circuits	Series AC Circuits (R-L, R-C, R-L-C) Parallel AC Circuits(R-L, R-C, L-C, LR-C), Power in AC circuits.	8
8	Three-Phase Systems	Three-Phase Supply, Star Connection, Delta Connection, Power in Three Phase Systems, Comparison of star and delta connections, Advantages of three phase systems.	8
CAT 2			