

Generically speaking, Electrical Networks supply the energy required for the production tool to operate. Thus, continuity of supply to loads is studied when the network is being designed and especially when the preliminary choices for the single-line diagram are being made.

The aim of designing an electrical network is to determine the electrical installation which will meet the requirements for the least investment, operation and failure cost. Accurate design must be according to standards, codes, regulations and catalogues.

### **Design Phases :-**

Concept Design (30%)

Load Estimate

Zoning :-

- Building Conditions
- Sufficient Electrical Rooms
- Branch Circuit Maximum Permitted Length
- Voltage Drop

Conceptual Single Line Diagram(Riser Diagram)

Bulk Equipment:-

(transformer, Generator, ups, central battery)

Switch Gears :-

MV ( Distributer, MVSG, RMU )

LV ( Free stand, Surface/Recessed Mounted)

Space Program :-

#Dedicated Electrical Space

#Working Space

#Entrance and Egress

Schematic Design (60%)

Lighting :- ( indoor and outdoor )

#( Design, control and safety lighting ). using software such Dialux, Dialux-evo,....etc

#Street Lighting Design

Small Power

Routing

Earthing system ( will be hardware project )

Lightning

Mep coordination ( HVAC, Fire fighting, Plumbing and low current systems )

Detailed Design (100%)

Panel Schedule

Protection devices Sizing (implementing Discrimination and cascading)

Cables (Sizing, vd, sc ). Using software such Ecodial,....etc

our project will be hospital and content this topics:-

- 1- Enhance energy management requirements:-
  - a- following green building & sustainability (LEED) principles and tools (pv, knx, Dali ..etc)
  - b- Power factor correction (**Note:** a detailed study must be implemented for harmonics before the choice of the compensation method).
- 2- BIM ( Building information modeling ) by softwares such as REVIT, REM(Rapid energy modeling)
- 3- BMS ( Building management system ) and the interference with ( KNX \_ DALI) Gateway

- 4- Electrical infrastructure
- 5- Shopdrawing
- 6- Low current (Fire alarm, Access control system, CCTA system, Public Address System, nurse call system )