

## الآية

قال تعالى:

{وَسَخَّرَ لَكُمْ الشَّمْسَ وَالْقَمَرَ دَائِبَيْنِ وَسَخَّرَ لَكُمْ اللَّيْلَ وَالنَّهَارَ }

سورة ابراهيم 33

{إِن يَشَأْ يُسْكِنِ الرِّيحَ فَيَظْلَنَ رَوَاكِدَ عَلَى ظَهْرِهِ إِنَّ فِي ذَلِكَ لآيَاتٍ

لِّكُلِّ صَبَّارٍ شَكُورٍ }

الشوري 33

# **DEDICATION**

To Those Who Gave Us Their Time, Love and Care Our Parents, Our  
teachers and every one inside Sudan University

To Our New Family 31 Batch

## ACKNOWLEDGEMENT

Unlimited prayers for Allah as the number of his creatures might of himself, weight of his throne and the extension of his words. The work on this project has been an inspiring, over exciting, sometimes challenging, but always interesting experience. It has been made possible by many other people who have supported us. We wish to express our profound thanks; gratitude and appreciation to our advisor **BhD. Khamees Arbeesh** for his guidance during our studies valuable technical editorial advice, suggestion, discussion and guidance were a real support to complete this project. Also special thanks for every teacher who support us and helped us accomplish this project. We really appreciate their support that is the following project. We really appreciate theirs support works we would like express our deepest appreciation along with our gratitude to our parents, for their unlimited support and their hard work until we complete our marching education and entire this project.

## **ABSTACT**

Distribution networks are one of the important elements in the delivery of electrical supply to subscribers in order to benefit from it in the fields of industry, home lighting and other fields, and for this a group of methods have been used to deliver the electrical supply from them through conductors if they are air or ground, but some methods faced many problems It led to the interruption of the electrical supply to the subscribers, which affected the elements of life and production. Therefore, it was necessary to develop a research that develops solutions to these problems so that the distribution within residential cities is through ground cables because of their high reliability, as well as their freedom from repeated faults that occur due to overhead lines. It meets the aspirations of the subscribers.

In order to implement the research, the first chapter addresses the problems facing the distribution networks, the benefits of the distribution networks, and the method used to implement this network.

In the second chapter, we talked about the components of the distribution networks, their types, and the methods of connecting the distribution networks, while in the third chapter a study area was taken (Aljawharaa) and load calculations were made and in light of it we have identified the appropriate elements for this network, and in the fourth chapter the method of work of the network was discussed as well as the mechanism Follow-up to know the faults when they occur.

## المستخلص

تعتبر شبكات التوزيع أحد العناصر المهمة في إيصال الإمداد الكهربائي للمستهلكين وذلك للاستفادة منه في مجالات الصناعة والإنارة المنزلية وغيرها من المجالات ، ولأجل ذلك تم استخدام مجموعة من الطرق لإيصال الإمداد الكهربائي منها عن طريق الموصلات إذا كانت هوائية أو أرضية ، ولكن بعض الطرق واجهت العديد من المشاكل أدت إلى انقطاع الإمداد الكهربائي عن المستهلكين مما أثرت على مقومات الحياة والإنتاج لذلك كان من الضروري وضع بحث يقوم بوضع حلول لتلك المشاكل بحيث يتم التوزيع داخل المدن السكنية عن طريق الكابلات الأرضية لما لها من وثوقيه عالية وكذلك خلوها من الأعطال المتكررة التي تحدث بسبب الخطوط الهوائية كما أنها تلبى طموحات المستهلكين.

ولتنفيذ البحث تم التطرق في الفصل الأول للمشاكل التي تواجه شبكات التوزيع وفوائد شبكات التوزيع والطريقة المتبعة لتنفيذ هذه الشبكة .

وفي الفصل الثاني تحدثنا عن مكونات شبكات التوزيع وأنواعها وطرق ربط شبكات التوزيع ، أما في الفصل الثالث تم أخذ منطقه للدراسة (مخطط الجوهرة) وتم إجراء حسابات الاحمال وعلى ضوءها قمنا بتحديد العناصر المناسبة لهذه الشبكة ، وفي الفصل الرابع تم التحدث عن طريقة عمل الشبكة وكذلك الألية المتبعة لمعرفة الأعطال عند حدوثها.