Palestine Technical University -Kadoorie
Quality Department
Tulkarm-P.O. Box: 7
Tel: 09/2761026 – 09/l2677923
Fax: 09/2677922
Email: quality@ptuk.edu.ps

جامعه فلسطين التقنية خضوري
دائرة الجودة والنوعية
طولكرم –ص .ب 7
هاتف: 09/2671026 -09/2677923
فاكس: 09/2677922
بريد الكتروني: quality@ptuk.edu.ps

## 1. General information about Instructor:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Name** | Asma'Shara'b | | | **Class Time & Office Hours** | | | | |
| **Phone** | **Internal** | | **Day** | SUN | MON | TUE | WED | THR |
| | **External** | | | | | | | |
| **Mobile** | | | **Class Time** | | 8-10 | | | 12-2 |
| **Instructor's E-mail** | **A.sharab@ptuk.edu.ps** | | **Class Room** | | H-106 | | | H-106 |
| | **Asma.sharab@hotmail.com** | | **Office Hours** | ------ | 10-12 | -------- | -------- | 10-12 |

## 2. General information

| No | Requirements | | | | | | |
|---|---|---|---|---|---|---|---|
| **1** | Course Title | Electrical circuit 1 | | | | | |
| **2** | Course code & Number | 12110102 | | | | | |
| **3** | Credit hours | Theo. (CH):3 | | | Practical (CH):1 | | |
| **4** | Faculty | **College of Engineering and Technology** | | | | | |
| **5** | Department / Division that offers the course: | **Bachelor of Technology-Electrical Engineering** | | | | | |
| **6** | Course type | Compulsory | | | Elective | | |
| | | Uni. | Fac. | Dep. | Uni. | Fac. | Dep. |
| | | | | X | | | |
| **7** | Level and Semester | second year , first/second semester | | | | | |
| **8** | Prerequisite(s) – If any | Electrical circuit 1 | | | | | |
| **9** | Co-requisite(s) – if any | | | | | | |
| **10** | Program/programs for it/them the course is offered | AutoCAD/DIALUX | | | | | |
| **11** | Instruction Medium: | English | X | | Arabic | X | |

## 3. Course description:

This course aims to provide the students the ability to apply different experiments of electrical circuits and Recognize the Components and Function of an Electric Circuit, the description of Basic Electrical Quantities then proof practically many laws such as Ohm's Law, to solute networks by many methods such as Kirchhoff's, superposition, Theveinen and Norton.

## 4. General Course Objectives

**On successful completion of this course the student will be able to achieve the following objectives:**

This course develops the student' s skills of connecting different experiments of electrical circuits by using Electronic Circuits Board, multimeter, other many components needing in the experiments

## 5.Intended Learning Outcomes/ILO's:

**A) Knowledge and understanding**

**B) Intellectual/Cognitive skills**

**C) Subject specialization and practical skills**

**D) General and transferable skills**

## 6. Topics covered and Calendar:

### A. Theoretical parts

| Number | Topics | Number of hours |
|---|---|---|
| **1.** | **Electric Circuit.** | **2** |
| **2.** | **Ohm's Law.** | **2** |
| **3.** | **Electrical Resistance.** | **2** |
| **4.** | **Voltage and Current Error Circuits** | **2** |
| **5.** | **Equivalent Voltage Sources** | **2** |
| **6.** | **Interconnection of Voltage Sources** | **2** |
| **7.** | **Electrical Energy and Power** | **2** |
| **8.** | **Efficiency and Electrical Power** | **2** |
| **9.** | **Solutions of Networks** | **4** |
| **10.** | **Capacitor in Direct current Circuits** | **2** |

### B. Practical part

| Number | Experiment | Number of weeks |
|---|---|---|
| 1. | 1.1 Components and Function of an Electric Circuit.<br>1.2 Description of Basic Electrical Quantities.<br>1.3 The Electric Circuit in a Practical Exercise.<br>1.4 Tasks / Questions | 1 |
| 2. | 2.1 Importance of Ohm's Law<br>2.2 Ohm's Law in a Practical Exercise<br>2.3 Tasks / Questions | 1 |
| 3. | 3.1 Types and Properties of Electrical Resistance<br>3.2 Linear Resistors<br>3.3 The NTC Resistor<br>3.4 The PTC Resistor<br>3.5 Voltage Dependent Resistor (VDR)<br>3.6 Photoresistor (LDR)<br>3.7 Series Connection of Resistors.<br>3.8 Parallel Connection of Resistors<br>3.9 Combination of Series and Parallel Circuits<br>3.10 The Off-load Voltage Divider<br>3.11 The Loaded Voltage Divider | 1 |
| 4. | 4.1 Principles of Voltage and Current Measurement<br>4.2 Use of Voltage and Current Error Circuits | 1 |
| 5. | 5.1 Properties of an Equivalent Voltage Source<br>5.2 Practical Exercises with an Equivalent Voltage Source | 1 |
| 6. | 6.1 Symbols Used for Voltage Sources | 1 |

| | | |
|---|---|---|
| | 6.2 Series Connection of Voltage Sources<br>6.3 Parallel Connection of Voltage Sources | |
| 7. | 7.1 Energy and Power in an Electrical Circuit<br>7.2 Practical Exercises, Power and Work in an Electric Circuit. | 1 |
| 8. | 8.1 Definition and Significance of Efficiency<br>8.2 Practical Exercises on Efficiency | 1 |
| 9. | 9.1 Kirchhoff and Superposition.<br>9.2 Thevenin and Norton. | 1 |
| 10. | 10.1 Construction and Characteristics of Capacitors<br>10.2 Types and Tasks of Capacitors<br>10.3 Charge and Discharge of a Capacitor<br>10.5 Capacitors Connected in Series<br>10.6 Capacitors Connected in Parallel | 1 |

## 8. References and other resources

**A. Recommended Textbook(s):**
Circuit 1 Laboratory Manual for Electrical Engineering, prepared by the instructors.

## 9. Class Grading Plan:

**1 class sessions each week; 2 hour each (practical)**

| | |
|---|---|
| Mid Exam | (30 Points) |
| Reports | (20 Points) |
| Final Exam | (40Points) |
| Others | (10 Points) |

**Name & signature of Head of department/ program leader**

Name: …… signature: ……Date: …….

**Name & signature of Quality rep. in your faculty**

Name: …… signature: ……Date: …….

**Course Tutor's name and signature**

Name: …… signature: ……Date: …….