



## COURSE PLAN

### FIRST: BASIC INFORMATION

College											
College	: Karak College										
Department	: Engineering Department.										
Course											
Course Title	: Fundamentals of Electronics										
Course Code	: <b>020406111</b>										
Credit Hours	: 3 (1 Theoretical, 2 Practical)										
Prerequisite	:										
Instructor											
Name	:										
Office No.	:										
Tel (Ext)	:										
E-mail	:										
Office Hours	:										
Class Times	<table border="1" style="width: 100%; border-collapse: collapse; height: 40px;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										

### Text Book

- **Fundamental of Electronics**, Al-Balqa Applied University & KOICA, 2022

### References

- Cathleen Shamieh, **“Electronics for Dummies,”** 3rd Ed., For Dummies, 2015.

### SECOND: PROFESSIONAL INFORMATION

#### COURSE DESCRIPTION

This course explores the basic concept and theory of electronics including the creation of electricity, electronic components for building electronic devices, electronic circuits that allow electricity to flow, and usage of the tools and devices commonly used in electronics.

#### COURSE OBJECTIVES

- **Explain** the basic concept and theory of electronics including the creation of electricity
- Determine the electronic components for building electronic devices,
- **Build** the electronic circuits that allow electricity to flow.
- Identify and calculate the basics of current and voltage.
- **Explain** the electrical values using measuring instruments and determining the load effect.

#### COURSE LEARNING OUTCOMES



By the end of the course, the students will be able to:

- CLO1. **Explain** the basic concept and theory in electronic engineering  
 CLO2. Explain the forms of energy and the transformations between them  
 CLO3. Identify electrical circuit components and their connection methods  
 CLO4. Identify the types of electrical resistors, their uses, and methods for determining their values  
 CLO5. **Explain** the types of batteries and how to connect them  
 CLO6. Identify the current and voltage principles  
 CLO7. **Explain** the Ohm's law and its calculations  
 CLO8. **Explain** the basic tools and devices for electronic engineering  
 CLO9. **Explain** the electrical values using measuring skills  
 CLO10. **Explain** the circuit behavior

### COURSE SYLLABUS

Week	Topic	Topic details	Related LO	Proposed assignments
1	Physics for electronics	<ul style="list-style-type: none"> <li>• What is electricity?</li> <li>• Exploring an atom.</li> <li>• Getting a charge out of protons and electrons.</li> <li>• Identifying conductors and insulators.</li> <li>• Mobilizing electrons to create current.</li> </ul>	CLO1	
2	Physics for electronics	<ul style="list-style-type: none"> <li>• Understanding voltage.</li> <li>• Putting electrical energy to work.</li> <li>• Using circuits to make sure Electrons Arrive at Their Destination.</li> </ul>	CLO1	
3	Electronic systems	<ul style="list-style-type: none"> <li>• Supplying Electrical Energy.</li> <li>• Getting direct current from a battery.</li> <li>• Using alternating current from a power plant.</li> </ul>	CLO2	
4	Electronic systems	<ul style="list-style-type: none"> <li>• Transforming electricity into various forms..</li> <li>• Using symbols to represent energy sources.</li> <li>• Understanding Conventional Current Flow.</li> </ul>	CLO2	
5	Electronic systems	<ul style="list-style-type: none"> <li>• Series connections.</li> <li>• Parallel connections.</li> <li>• Controlling the action of a switch.</li> <li>• Making the right contacts.</li> <li>• Creating a Combination Circuit.</li> </ul>	CLO3	
6	Resistance and conductivity	<ul style="list-style-type: none"> <li>• Resisting the flow of current and the resistors uses.</li> <li>• Choosing a type of resistor: Fixed or variable.</li> <li>• Rating resistors according to power.</li> </ul>	CLO4	
7	Resistance and conductivity	<ul style="list-style-type: none"> <li>• Resistor Color Coding.</li> <li>• Combining Resistors in serial.</li> <li>• Combining Resistors in parallel.</li> </ul>	CLO4	
8		<b>Mid exam</b>		



Week	Topic	Topic details	Related LO	Proposed assignments
9	Batteries	<ul style="list-style-type: none"> <li>• Choosing wires wisely.</li> <li>• Connecting batteries to circuits.</li> <li>• Sorting batteries by what's inside.</li> </ul>	CLO5	
10	Electronic circuits.	<ul style="list-style-type: none"> <li>• Defining Ohm's Law.</li> <li>• Calculating current through a component.</li> <li>• Calculating voltage across a component.</li> <li>• Calculating an unknown resistance.</li> <li>• Analyzing complex circuits.</li> </ul>	CLO6	
11	Electronic circuits.	<ul style="list-style-type: none"> <li>• Voltage and current in serial connection.</li> <li>• Voltage and current in parallel connection.</li> <li>• Using Joule's Law to choose components.</li> <li>• Relation between Joule's and Ohm's Law.</li> </ul>	CLO7	
12	Tools and devices for electronic engineering	<ul style="list-style-type: none"> <li>• Ammeter.</li> <li>• Voltmeter.</li> <li>• Ohmmeter.</li> <li>• Choosing a style: analog or digital.</li> </ul>	CLO8	
13	Tools and devices for electronic engineering	<ul style="list-style-type: none"> <li>• Taking a closer look at a digital multimeter.</li> <li>• Choosing the range.</li> <li>• Setting Up Your Multimeter.</li> <li>• Operating Your Multimeter.</li> </ul>	CLO9	
14	Measuring voltage, current and resistance	<ul style="list-style-type: none"> <li>• Comparing Closed, Open, and Short Circuits.</li> <li>• Understanding Conventional Current Flow.</li> <li>• Examining a Basic Circuit.</li> </ul>	CLO9	
15	Measuring voltage, current and resistance	<ul style="list-style-type: none"> <li>• Measuring voltage.</li> <li>• Measuring current.</li> <li>• Calculating power.</li> </ul>	CLO10	
16		<b>Final exam</b>		

### COURSE LEARNING RESOURCES

Teaching will be achieved using available resources including lectures, data show, and materials uploaded on the e-learning system.

### ONLINE RESOURCES

- <https://www.circuitstoday.com/>
- <https://www.eleccircuit.com/>
- <http://www.discovercircuits.com/list.htm>



### ASSESSMENT TOOLS

Assessment Tools	%
Projects and Quizzes	20%
MID Exam	30%
Final Exam	50%
Total Marks	100%

### THIRD: COURSE RULES

#### ATTENDANCE RULES

Attendance and participation are extremely important, and the usual University rules will apply. Attendance will be recorded for each class. Absence of 10% will result in a first written warning. Absence of 15% of the course will result in a second warning. Absence of 20% or more will result in forfeiting the course and the student will not be permitted to attend the final examination. Should a student encounter any special circumstances (i.e. medical or personal), he/she is encouraged to discuss this with the instructor and written proof will be required to delete any absences from his/her attendance records.

#### GRADING SYSTEM

Example:

Grade	points
FAILED	0-49
PASSED	50-100

#### REMARKS

{ The instructor can add any comments and directives such as the attendance policy and topics related to ethics }

#### COURSE COORDINATOR

**Course Coordinator:** Eng.mahmoud aljafari

**Signature:** Eng.mahmoud aljafari

**Date:**

**Department Head:**

**Signature:**

**Date:**