Jordan University of Science and Technology

Faculty of Science & Arts

Physics Department

PHY231 Electronics (1) - JNQF Level: 7
Second Semester 2023-2024

Course Catalog
3 Credit Hours. This course covers the following topics: DC Circuits, AC Circuits, p-n junction diodes, diodes in DC circuits, diodes in AC circuits, junction transistors, transistors in DC circuits, transistors in AC circuits (voltage amplifiers).
Teaching Method: On Campus

Text Book	
Title	Electronic Principles
Author(s)	A. P. Malvino
Edition	8th Edition
Short Name	Ref. 1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref 2	Principles of Electronics: Analog and Digital	Lloyd R. Fortney	4th Edition	
Ref 3	Electronics fundamentals, circuits devices and applications	Floyd Thomas and Buchla David	8th Edition	

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 12:30 - 13:30 Room: PH2102

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
921020	PHY102 General Physics (2)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	DC circuits, Ohm's law, Kirchhoff?s laws, Thevenin?s theorem and Norton?s theorem	From **Ref. 1**
Weeks 3, 4	To understand and masters the ac circuit analysis using phases in RCL-circuits in addition to the resistance, admittance and impedance.	
Weeks 5, 6, 7	Atomic structure of materials and energy levels (semiconductors in particular), extrinsic and intrinsic materials, pn-junction diodes, biasing diodes, approximations, dc load line, rectifiers, filters, clippers and clampers and voltage multipliers.	**Chapter: 2, 3, 4** From **Ref. 1**
Week 8	Zener Diode	**Chapter 5** From **Ref. 1**
Weeks 8, 9, 10, 11	Bipolar Junction Transistor: Transistor theory, Common Emitter Base Biasing CEBBT, I-V Characteristics, dc load line, Transistor Approximations. Other types of biasing transistors: (CEEBT, Switch, TSCET, VDT, Feedback biasing. More Applications	**Chapte: 6, 7, 8** From **Ref. 1**
Weeks 12, 13, 14, 15	AC models, voltage amplifiers, power amplifier*	**Chapte: 9, 10** From **Ref. 1**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To understand and masters the dc circuit analysis using Ohm's law, Kirchoff's laws, Thevenin's theorem and Norton's theorem. To understand the diode theory and its role in dc and ac circuits and real applications. (rectifiers, transformers, filters, clippers and clampers, and voltage multiplier, Zener diode, and voltage regulators). [3SLO1(K1S1)] [1L7K1, 1L7S1]	50%	
To understand the transistor theory and its role in dc and ac circuits and real applications. (CEBBT, CEEBT, Switch, TSCET, VDT, Feedback biasing,?, AC models, voltage amplifiers, power amplifier). [1SLO2(S23C1)] [1L7S2, 1L7S3, 1L7C1]	50%	

Relationship to Program Student Outcomes (Out of 100%)					
SLO1(K1S1)	SLO2(S23C1)	SLO3(C24)	SLO4(C3)	SLO5(C4)	SLO6(S2C3)
50	50				

Relationship to NQF Outcomes (Out of 100%)				
L7K1	L7S1	L7S2	L7S3	L7C1
25	25	16.67	16.67	16.67

Evaluation	
Assessment Tool	**Weight**
First Exam	25%
Second Exam	25%
Assignments	10%
Final Exam	40%

Policy	
Regulations for the course	Our course will be carried out in a manner where a registered videotape will be uploaded to my video channel a day before the class, then, at the time of the class on the next, we will discuss and answer all questions on the material. All classes will be carried out in the same manner as long as we are suffering from the pandemic due to covid 19. If things will change, then we will continue the classes face-to-face as usual.
Attendance and regulations	No more than 20% of the class meetings will be allowed. Who exceeds this percent of attendance will get 35 out of 100 grades as a final grade in the course.

Date Printed: 2024-02-13