



مركز الاعتماد
و ضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER



The University of Jordan

Accreditation & Quality Assurance Center

Course Syllabus

Course Name:
Electronics Lab

1	Course title	Electronic Laboratory	
2	Course number	PHYS 0302312	
3	Credit hours (theory, practical)	Theory 0 credit hours + Practical 1 credit hour.	
	Contact hours (theory, practical)	Practical: Thursday 1:00 – 4:00 / Section 1. Wednesday 12:30 – 3:30 / Section 2.	
4	Prerequisites/corequisites	None	
5	Program title	Physics – BSc.	
6	Program code	PHYS 0302312	
7	Awarding institution	The University of Jordan	
8	Faculty	Science	
9	Department	Physics	
10	Level of course	Undergraduate	
11	Year of study and semester (s)	2016/2017 - Second Semester	
12	Final Qualification	BSc. in Physics.	
13	Other department (s) involved in teaching the course	None	
14	Language of Instruction	English	
15	Date of production/revision	11/5/ 2017	

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Office numbers : 201 Accelerator Building,
office hours : Sunday, and Thursday: 9:30 – 10:30 ; Monday and Wednesday: 10:00 – 11:00;
phone numbers: Office Phone number: 5535000 – 22055.
Email address: k.saleh@ju.edu.jo
kamals1950@gmail.com

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Office numbers : 201 Accelerator Building,
office hours : Sunday, Tuesday, and Thursday: 9:30 – 10:30 ; Monday and Wednesday: 10:00 – 11:00;
phone numbers: Office Phone number: 5535000 – 22055.
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18. Course Description:

As stated in the approved study plan.

This course provides students with experimental training on electronic devices and their electronic circuit applications. The course focuses on experimental analyses of electronic circuits that contains diodes, transistors, and operational amplifiers, and indicate their experimental applications. Experiments are designed to introduce various aspects of electronics starting from the simplest concepts such as Ohm's law and leading to practical electronic circuits including amplifiers, integrated circuits, and oscillators.

1. 19. Course aims and outcomes:

2.

A- Aims:

This course aims at providing students with fundamental knowledge of electronics and integrates his knowledge by the enhancement of their experience in both analysis and technical skills in the field of analogue electronic circuit. It will also assist students to emphasize and reinforce their experimental skills, technical writing, team work, communication and reporting skills.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...

1- *Acquire skills in using testing and measuring instruments in experimental electronics*

2- *Acquire a clear understanding of the basic physics of semi-conducting devices.*

3- *Develop a clear understanding of the electronic devices and their applications.*

4- Discuss the structure of semiconductor devices and find their I-V characteristics and their biasing methods.

5- Observe rectification, limiting, clipping, and clamping waveforms at the output of different diode circuits.

6- Use a diode rectifier to construct a regulated DC power supply.

7- *Draw the DC load line of a transistor circuit and understand the working conditions of transistor switching.*

8- Build a transistor amplifier circuit and measure its gain.

9- Apply operational amplifier device to construct positive and negative feedback amplifier, summing amplifier, integrator, differentiator, comparator, and oscillator functional circuits.

10- *Apply Kichhoff's Laws to both AC and DC electric circuit analysis.*

11- *practice on data analysis and professional style reporting and presentation.*

20. Topic Outline and Schedule:

3.

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
<i>Measuring Devices and AC Waveform Display and Analysis.</i>	1	Dr. Kamal Al-Saleh	1,5,11	Discussion , Lab activity & Exams	Lab Manual
Current-Voltage Characteristics	1		2,3,4,10,11		

of the Diode and transistor devices.					
Rectification and Filtering of Diode Circuit.	2		2,3,5,6,11		
Zener Diode Characteristics and operation.	2		2,3,5,10,11		
Diode Clippers and Clampers application circuit.	3		2,3,5,10,11	Exam	
Transistor Biasing circuit Amplifiers	3		7,8,10,11		
Transistor Amplifiers.	4		7,8,10,11		
Operational Amplifiers.	4		9, 10,11		
Comparators	5		9,10,11		
Oscillators	5		9,10,11		

4.
5.

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- In-Lab discussion
- Lab reporting
- Websites revisions

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

- Two written exams
- Lab work evaluation
- Quizzes

23. Course Policies:

A- Attendance policies:

Students are expected to attend all scheduled class sessions as listed on the course calendar. Any student missing more than 15% of lectures will be unregistered for the course by law.

B- Absences from exams and handing in assignments on time:

Absence from an exam without acceptable reason will not be given another chance and will be evaluated to zero.

Handing of assignment should meet the deadline otherwise will not be accepted for evaluation unless a special permission is requested before the due date.

C- Health and safety procedures:

Warning students from electric shocks.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Course instructor has the initial responsibility for detecting and dealing with academic dishonesty. Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs, or his academic grade will be adversely affected.

E- Grading policy:

1- Midterm Exam	20 %
2- Final Exam	40 %
3- Classroom activities	
(a) Lab Reports	20 %
(b) Quizzes & Evaluations	10 %

F- Available university services that support achievement in the course:

- 1- E-Learning website prepared for teaching faculty members.
- 2- Regular class room and computer Lab.
- 3- Instructor website
- 4- Blackboard and Electronic equipments.

24. Required equipment:

25. References:

A- Required book (s), assigned reading and audio-visuals:

Text book:

- "Department Lab Manual.
- Class room notes.

B- Recommended books, materials, and media:

Other text books:

- (a) "Electronic Devices", by Thomas L. Floyed. Macmillan Publishing Company.
- (b) "Electronic Circuit Analysis", by R. A. Colcalasser, D. A. Neamen, C. F. Hawkins.

26. Additional information:Web sites:

- (a) <http://www.electricvlab.com/downloads/manual-vtu-analog-electronics.pdf>
 - (b) <http://www.edutalks.org/releases/Em2.pdf>
 - (c) <http://www3.nd.edu/~eeuglabs/ee224/lab-manual.pdf>
 - (d) http://www.elenco.com/admin_data/pdffiles/PK-101_REV-G.pdf
 - (e) http://ruangbacafmipa.staff.ub.ac.id/files/2012/02/ebooksclub.org_Hands_On_Electronics_A_Practical_Introduction_to_Analog_and_Digital_Circuits.pdf
 - (f) <http://www.hl.pc.uec.ac.jp/hays/electronics/textbook.pdf>
 - (g) <http://www.seas.upenn.edu/~ese206/>
 - (h) http://www.electronics-lab.com/articles/electronics_courses.html
- <http://home.comcast.net/~stager21/Circuits.html>

Name of Course Coordinator: --- Kamal Al-Saleh --- Signature: -----Kamal----- Date: ----11/5/2017----

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File