THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Physics

PHY 318 – Electronics Practical II

Course Code: PHY 318
Course Title: Electronics Practical II
No. of Units: 3
Course Duration: Three hours per week for 15 weeks.
Status: Compulsory
Course Email Addresses: aipopoola@futa.edu.ng or wumag_2000@yahoo.com
Course Webpage: http://www.phy.futa.edu.ng/courseschedule.php?coursecode = PHY318
Prerequisite: PHY210, PHY319

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This is a continuation course for students that have already taken basic electronics (PHY 210) and electronics II (PHY 319). The course is designed to enhance the student's ability to understand, construct and analyze basic electronic circuits. In the cause of this course, the following topics are covered: **Single stage amplifiers:** common-emitter, common-base, common collector. **Multistage amplifiers. Voltage regulators. Oscillators:** wien-bridge, colpitts and Hartley oscillators. **Transistor Logic gates:** AND, NAND and OR gates. **FETs** and their common source and drain characteristics.

COURSE OBJECTIVES

The objectives of this course are to:

- Consolidate on the knowledge previously gained in PHY 210 and PHY 319.
- Develop the student's capacity to construct and understand the workings of basic electronic circuits
- Provide students with opportunities to use Laboratory facilities to study and diagnose electronic circuits.
- Enhance the student's confidence, regarding independent circuit assembling and probing.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:
(*Knowledge base*)

- Identify correctly, some electrical devices such as resistors, diodes, transistors etc.
- Understand the purpose and function of each device in a particular circuitry.
- Carry out the assembling of these components to form a workable circuit.
- Carry out some experiment to understand the workings of each circuit.
- Students are provided with the ability to use available laboratory facilities to diagnose problematic circuitry.

(*Skills*)

- To select good solder and appropriate soldering iron/gun.
- To use analog/digital multi-meter to test and diagnose faulty components before and after assembling.
- To prepare the devices and solder board for assembling.
- To use laboratory facilities like power supplies, signal generators, cathode ray oscilloscope etc to study circuits.

- Produce a neat, working and well assembled circuitry.

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Laboratory experiments (group)	30%
Interaction with instructors	20%
Laboratory experiment (individual)	50%
TOTAL	100%

GENERAL INSTRUCTIONS

To attain success in this course, students are required to familiarize themselves with the [1]PHY 210 manual. Students are also encouraged to always get in-touch with the instructors whenever they have difficulties.

READING LIST

[1]Introductory Electronics I
[2]Intermediate Electronics Practical

Legend
1- Available in the Department
2- Available in the Department

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and course overview	Review of PHY 210 & 319. Introduction to PHY 318.
2 & 3	1ST Laboratory session	Students are required to collect components for assembling and data collection. Instructors would also interact with students one-on-one regarding the student's knowledge about the experiment.
4 & 5	2ND Laboratory session	Same as above
6 & 7	3RD Laboratory session	Same as above
8 & 9	4TH Laboratory session	Same as above
10 & 11	5TH Laboratory session	Same as above
12 & 13	Student Assessment	Each student is tested on his/her ability to carry out independent component selection, assembling and testing.
14 & 15	6TH Laboratory session	Make-up for any lost laboratory sessions.