EDO UNIVERSITY IYAMHO
Department of Electrical/Electronic Engineering
EEE 312 Analogue Electronic Circuit

Instructor: *Engr. (Dr.) Amhenrior Henry E*, email: Amhenrior.henry@edouniversity.edu.ng
Lectures: Tuesday, 1 pm – 2 pm & Wednesday, 10 am – 12 noon, Engineering Drawing Studio,
Phone: (+234) 8032107220; Office hours: Wednesday, 8.30am to 9.30am,
Office: First room by the left, right wing, ground floor, Engineering & Medical. Sc. Building.

Teaching Assistants: *None*

General overview of lecture: The purpose of this course is to give students the basic understanding and applications of the transistor and operational amplifiers. Areas covered by this course include the parameter analysis of the equivalent circuit of the single-stage and multistage transistor amplifiers using BJTs and FETs, Operational Amplifiers analysis such as the feedback, broadband and narrowed band amplifiers; power amplifiers analysis; Voltage amplifiers, Voltage and current stabilizing circuit.

Prerequisites: Students are expected to have good knowledge of ac and dc circuit analysis and be familiar with some concepts such as amplification, gain, impedance, current, voltage etc. Students are also expected to have basic mathematical and circuit analytical skills.

Learning outcomes: At the end of this course, it is expected that students:
i. will be able to describe the structure of BJT, FET and Operational Amplifiers,
ii. will be able to explain the working/operation of the transistors and Op Amp,
iii. will be able to discuss the various configurations of transistors and their best applications,
iv. will have a better understanding of the use of mathematical principles in circuit analysis,
v. will be able to explain and analyse the operations of the classes of power amplifiers and their use,
vi. will be able to analyse the operation of various Op Am circuit and their applications,
vii. will be able to describe and analyse the various forms of voltage regulator and stabilizing circuit.

Assignments: In this course, we shall have three (3) assignments for each student and a Test after the midway of the semester. The assignments are systematically structured to prepare the students for the Test and the examination at the end of the semester.

Grading: The continuous assessment of this course will have a total of 30% with attendance accounting for 10%, assignment accounting for 10% and Test accounting for 10%. The semester examination will account for 70% of the grade/mark.

Textbook: The recommended textbook for this class are as stated:
1. Title: *Principles of Electronics*
   Authors: V.K. Mehta and Rohit Mehta

Publisher: S. Chand & Company Ram Nagar, New Delhi-110 055 (Multicolour Illustrative Edition)

2. Title: *Electronic Devices and Circuits*
   Author: K. Lal Kishore
   Publisher: BS Publications
   ISBN: 81-7800-167-5

3. Title: *Electronic Devices (Second Edition)*
   Author: Jimmie J. Cathey (Schaum's Outline Series)
   Publisher: Mcgraw-Hill
   ISBN: 0-13-127827-4

4. Title: *Electronic Devices and Circuits (Tenth Edition)*
   Author: Thomas l. Floyd
   Publisher: Pearson Education, Inc.,

5. Title: *Electronic Devices and Circuit Theory (Seventh Edition)*
   Author: Robert Boylestad and Louis Nashelsky
   Publisher: Prentice Hall

Courseware: - EEE 312 – Analogue Electronic Circuit

Below is an outline of the courseware for the course EEE 312- Analogue Electronic Circuits. The materials used in this course are partly from recommended text books.

1: Introduction. Transistor Amplifiers.
   i. Definition
   ii. Types and construction of BJT
   iii. BJT Actions
   iv. Transistor configurations and their amplification factors
   v. Input and output characteristics
   vi. Transistor biasing
2: Review of Single-stage BJT transistor amplifier.
   vii. Amplifier equivalent circuit
   viii. Amplifier gains and impedances
   ix. Applications of BJT
3: Multistage transistor amplifiers
   x. What is cascading?
   xi. Transistor amplifier coupling
   xii. Types of coupling and their parameters
   xiii. Multistage amplifier gain
   xiv. Multistage amplifier decibel, frequency response and bandwidth
4: Field Effect Transistor (FET)
   xv. Definition
   xvi. Types and construction