

ENG103 Digital Electronics Design

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY SEMESTER

Synopsis:

Upon the completion of the Digital Electronics Design course, students will be able to perform analysis and design of digital circuits. The course teaches the principles of digital circuit components that are the basic building blocks, and also the application of appropriate mathematical methods for modeling components and circuits.

Topics:

- Introductory concepts, number systems and codes
- Describing logic circuits, combinational logic circuits
- Flip-flops and related devices
- Digital arithmetic: Operations and circuits
- Counters and registers
- MSI logic circuits
- Memory Devices
- Programmable logic device architectures

Textbooks:

Ronald Tocci, Neal Widmer, and Greg Moss,: Digital Systems: Principles and Applications
(eTextbook) 12/E Prentice-Hall Pearson
ISBN-13: 978129162010

Learning Outcome:

- Give the conversion from one number system to another.
- Execute arithmetic operation on binary numbers.
- Use Boolean algebra theorems and Karnaugh maps to simplify logic circuits.
- Recall the operation of flip-flops and basic logic circuits.
- Sketch the timing diagram.
- List the truth table for logic circuits.
- Design synchronous / asynchronous digital circuits.
- Implement logic expressions using logic gates/ multiplexer/ encoder/ decoder.

Assessment Strategies (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	CLASS TEST 1	10
	CLASS TEST 2	10
	LAB TEST 1	10
Overall Examinable Components	Written Exam	70
Total		100