Course Outline of Digital Electronics and Pulse Techniques (CSE 223)

Part A

1. Course Code: CSE 223

2. Course Title: Digital Electronics and Pulse Techniques

3. Year/Level/Semester/Term: 7th Semester

5. Academic Session: Fall 2025

6. Course Teacher/Instructor: Shahin Akter

8. Credit Value: 3

9. Contact Hours: 39

10. Total Marks: 100

11. Email Address: shahin.akter@eastdelta.edu.bd

11. Rationale of the Course: Students will be familiar with basic elements of electronics so that they can develop and employ circuit models for elementary electronic components, (e.g resistors, sources, inductors, capacitors, diodes and transistors).

12. Course Plan:

Week	Topic	Assessment Strategies
01	Basics of Digital Electronics, logic levels, Fan Out, propagation delay, noise immunity, power dissipation, voltage and current parameters	Short Question, Brief Explanation, Execution of math
02	Transistor as a switch, Logic Gates, Logic Families: Diode Logic Gate, RTL, DTL	Short Question, , Brief Explanation
03	TTL, Open collector and high impedance gates, Totem Pole, Tristate	Short Question, Brief Explanation
CT 01		
04	MOS Logic Family, MOSFET operation, NMOS Logic Circuits	Short Question, Brief Explanation
05	CMOS logic with operation details, Function implementation	Short Question, Brief Explanation
Assignment 01		

06	Electronic circuits for flip-flops, counters	Short Question, Brief Explanation
MID TERM EXAMINATION		
08	Introduction to op-amp amplifiers	Short Question, Brief Explanation
09	Op-amp input modes and parameters	Short Question, Brief Explanation
10	Negative feedback, op-amp with negative feedback, effects on input impedance	Short Question, Brief Explanation, Execution of math
CT 02		
11	Op-amp Applications	Short Question, Brief Explanation, Assignment
Assignment 02		
12	555 Timer, monostable, bistable and astablemultivibrators	Short Question, Brief Explanation
13	**Practice Problems, Summary and Exam preparation**	Short Question, Brief Explanation, Execution of math
FINAL TERM EXAMINATION		

13. Learning Materials:

Book:

- M. Morris Mano. - Digital Logic and Computer Design.-Pearson India (2017)
- Robert F. Coughlin_ Frederick F. Driscoll - Operational Amplifiers and Linear Integrated Circuits (2000, Pearson)
- Microelectronic Circuits Sedra Smith 7th Edition
- Electronic-devices-9th-edition-by-floyd
- Digital-systems-12th-globalnbsped-1292162007-978-1292162003
- Digital Electronics by Floyd
- Digital Logic with VHDL design by Stephen Brown