CSE11105	Switching Circuit and Logic Design	L	T	P	C
Version 1.0	Contact Hours 45 Hours	3	0	0	3
Pre-requisite/Exposure	Basic Electronics, Modern Physics				
Co-requisite	Digital Electronics				

Course Objectives:

- To introduce an overview of logic families.To introduce an overview of logic families.
- To develop students for building k-map.
- To provide the students a detailed analysis of sequential circuit.
- To introduce the students to formalize with ASM chart.

Course Outcomes:

On the completion of this course the student will be able to

CO1: **Understand** and construct the basic design principles of logic gate.

CO2: **Understand** the different fabrication techniques used in Bipolar, CMOS

and PLA.CO3: **Formaliz**e with Mealy and Moore machine.

CO4: **Construct** ROM

design.CO5: **Realize** the

ASM Charts

Course Description:

This course will discuss the basic background of switching circuits, and discuss techniques for mapping the theory toactual hardware circuits. Synthesis and minimization techniques of combinational and sequential circuits shall be discussed in detail. Designing circuits using high-level functional blocks shall also be discussed.

Course Content:

Unit-I	7 Lecture Hours
Switching Circuits: Logic families: TTL, nMOS, CMOS, dynamic CMOS and pass transistor logic (PTL) circuits, inverters and otherlogic gates, area, power and delay characteristics, concepts of fan-in, fan-out and noise margin.	
Unit-II	**10 Lecture Hours**

Switching theory:

Switching algebra, logic gates, switching functions, truth tables and switching expressions, minimization of completely and incompletely specified switching functions, Karnaugh map and Quine-McCluskey method, multiple output minimization, representation and manipulation of functions using BDD's, two-level and multi-level logic

circuit synthesis.

Unit-III	**7 Lecture Hours**

Combinational logic circuits:

Realization of Boolean functions using NAND/NOR gates, Decoders, multiplexers. logic design using ROMs,PLAs and FPGAs. Case studies, fault diagnosis of combinational circuits

Unit-IV	**15 Lecture Hours**

Sequential circuits:

Clocks, flip-flops, latches, counters and shift registers, finite-state machine model, Mealy and Moore machines,synthesis of synchronous sequential circuits, Conversion of Mealy m/c to Moore m/c and vice-versa, minimization

uential circuit synthesis.

Unit-V	**6 Lecture Hours**

ASM charts:

Representation of sequential circuits using ASM charts, synthesis of output and next state functions, data pathcontrol path partition-based design.

Text Books:

1. H. Taub and D. Schilling, Digital Integrated Electronics, McGraw-Hill.

Reference Books:

ohavi, Switching and Finite Automata Theory, Tata McGraw-Hill

dy H. Katz and Gaetano Borriello, Contemporary Logic Design, Prentice Hall of India

Modes of Evaluation: Quiz/Assignment/Presentation/Extempore/ Written Examination

Examination Scheme:

Components	Mid Term	Class Assessment	End Term
Weightage (%)	**20**	**30**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Course Code	Course Name	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CSE11105	Switching Circuit and Logic Design	CO11105.1	2	2	2	2	2	1	1	-	1	-	-	1	2	3	2
		CO11105.2	2	3	3	3	3	3	2	-	3	-	-	3	1	3	3
		CO11105.3	3	2	3	3	1	3	2	-	1	-	-	3	3	3	2
		CO11105.4	2	2	2	3	2	2	3	-	3	-	-	3	1	2	3
		CO11105.5	3	3	1	1	3	2	3	3	3	-	-	2	2	2	3
		CO11105	2.4	2.4	2.2	2.4	2.2	2.2	2.2	3.0	2.2	-	-	2.4	1.8	2.6	2.6

1 = Weakly Mapped

2 = Moderately Mapped3 = Strongly Mapped

CSE12106	Principles of Programming Language Lab	L	T	P	C
Version 1.0	Contact Hours 30 Hours	0	0	2	1
Pre-requisite/Exposure	Knowledge on programming basics				
Co-requisite	NIL				

Course Objectives:

- To motivate students to solve the problems in engineering using the concepts of object-orientedprogramming.
- To enable students to apply OOP concepts in building solutions to real-world problems.
- To help the student to acquire knowledge of software development
- To enable students to debug simple C++ programs.
- To enable students to execute C++ programs successfully.

Course Outcomes:

On the completion of this course the student will be able to

CO1: **Define** classes, objects, members of a class and the relationships among them needed for afinding the solution to specific problem.

CO2: **Apply** fundamentals of object-oriented programming in C++, including defining classes, invokingmethods, using class libraries, etc.

CO3: **Explain** important topics related to functions and pointers.

CO4: **Understand** the scope of variables and utility of exception handling.. CO5: **Utilise** the OOP knowledge to create, debug and run simple C++ programs.

Course Description:

This course introduces students to C++ programming language, a dominant language in the industry today. Studentswill be taught the fundamentals of programming. These concepts are applicable to programming in any language.

Topics covered include basic principles of programming using C++, algorithmic and procedural problem solving, program design and development, basic data types, control structures, functions, arrays, pointers, and introduction toclasses for programmer-defined data types..

Course Content:

Unit-I	09 Lecture Hours
Write a C program to find factorial of a number. Write a C program to find roots of a quadratic equation. Write a C program to find whether the number is Armstrong.	
Unit-II	**09 Lecture Hours**