

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN (June - November 2026)**

Department : Physics
Name/s of the Faculty : Ms. Christy Preetha. A
Course Title : Electronics I
Course Code : 25PH/MC/EL13
Shift : I

COURSE OUTCOMES (COs)

COs	Description						CL
CO1	recall and define the fundamental concepts of number systems, logic gates, Boolean algebra, Karnaugh map and relate them with the digital circuits.						K1
CO2	explain the working of arithmetic circuits, flipflops, registers, counters, and operational amplifier.						K2
CO3	construct and demonstrate the combinational and sequential circuits, and operational amplifier circuits.						K3
CO4	analyze the operation of various combinational and sequential circuits including Op-Amp circuits.						K4
CO5	identify basic requirements for a design application and their role in the digital system.						K5
Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods

Jun 22, 2026 (Day Order 6)	1	1.1 Introduction – Analog and Digital Signals	K1-K5	1	1-5	Lecture	Interactive assessment
Jun 23 – July 1, 2026 (Day Order 1- 6)	1	1.1 Digital Circuit - Decimal - Binary - Octal and Hexadecimal Number Systems - Conversions	K1-K5	3	1-5	Problem-solving	Third component test I - Problem based assessment (K3 level for 20 marks)
July 2 – July 8, 2026 (Day Order 1- 6)	1	1.2 Binary Arithmetic – Principles of Addition – Subtraction - 1's Complement and 2's Complement Method - Multiplication and Division	K1-K5	3	1-5	Problem-solving	Third component test I - Problem based assessment (K3 level for 20 marks)
July 9 – 16, 2026 (Day Order 1- 6)	2	2.1 De Morgan's Theorem - Implementation of Boolean Algebra into Circuits - Half Adder – Full Adder – Half Subtractor – Full	K1-K5	3	1-5	Lecture	Designing circuits for the given Boolean expressions

		Subtractor					
July 17 – 24, 2026 (Day Order 1- 6)	2	2.2 Fundamental Products – SOP and POS Forms - Karnaugh Map - Simplification up to four Variables (SOP Only)	K1-K5	3	1-5	Lecture and Problem-solving	Practice worksheets
July 25 – 28, 2026 (Day Order 1- 3)	2	2.2 K Map - Don't Care Conditions - Realization of Logic Circuits	K1-K5	1	1-5	Problem-solving	Practice worksheets
July 29 – Aug 3, 2026	C.A. Test - I						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3	3.1 Flip-Flops: Introduction- types of Flip-Flop-S-R Flip-Flop – S-R clocked Flip Flop - D Flip-Flop	K1-K5	2	1-5	Lecture	Third component test II – Theory test (K1, K2 levels for 20 marks)
Aug 7 – 14, 2026 (Day Order 1- 6)	3	3.1 JK Flip-Flop -JK Master Slave Flip-Flop - T - Flip-Flop and their truth tables	K1-K5	3	1-5	Lecture	Third component test II – Theory test (K1, K2 levels for 20

							marks)
Aug 17 - 24, 2026 (Day Order 1- 6)	3	3.2 Registers: Shift registers – Shift right - Shift left registers (Serial-In-Serial - Out only)	K1-K5	3	1-5	Lecture	Concept map summarizing the content
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	3	3.2 Counters: Mod-2, Mod - 8, Mod - 16 counters - Binary ripple counter (4-bit up counter)	K1-K5	3	1-5	Lecture	Assignment – mod 6 and mod 10 counter circuits
Sep 3 – 11, 2026 (Day Order 1- 6)	5	5.1 Digital-Analog converters - Binary Weighted resistor D/A converter - R–2R resistive ladder D/A converter. 5.2 Analog to Digital converters: Counter type A/D converter	K1-K5	3	1-5	Lecture	Concept map summarizing the content
Sep 15-17, 2026 (Day Order 1 - 3)	5	5.2 Parallel comparator A/D converter.	K1-K5	1	1-5	Lecture	Concept map summarizing the content

Sep 18 –23, 2026	C.A. Test - II						
Sep 24 - 28, 2026 (Day 4 – 6)	4	4.1 – Operational Amplifier - Differential Amplifier – CMRR – Virtual Ground	K1-K5	2	1-5	Lecture	Quiz
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	4	4.2 Operational amplifier - Non-inverting – Inverting modes of operation – Gain equation - Operational Amplifier applications: Adder	K1-K5	3	1-5	Lecture with demonstration	Third component III: Video Presentation – “Inside an electronic device” (K5 level for 10 marks)
Oct 8 - 14, 2026 (Day Order 1 - 6)	4	4.2 Operational Amplifier applications: Scale and sign changer subtractor - Differentiator – Integrator	K1-K5	3	1-5	Lecture with demonstration	Concept map summarizing the content
Oct 15 - 21, 2026 (Day Order 1- 4)	REVISION						