

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : PHYSICS
Name/s of the Faculty : DR. D. SUKANYA AND DR. R. RACHEL DARTHY
Course Title : EXPERIMENTAL PHYSICS - I
Course Code : 23PH/PC/P114
Shift : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	understand the experimental perspective of the principles of physics through individual hands on experience leading to conceptual learning.	K1
CO2	design electronic circuits, ideate the experimental set-up of equipments and develop microprocessor program to perform the specific experiments systematically	K2
CO3	demonstrate Laboratory experiments, both qualitatively and quantitatively inculcating scientific temper, reflective and logical thinking.	K3
CO4	evaluate and interpret the recorded observations using graphs and numerical calculations justified by the degree of accuracy.	K4, K5

CO5	draw conclusions from performed experiments and explore the scope of future investigations promoting experiential learning.						K6
Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 22, 2026 (Day Order 6)		NO CLASS					
Jun 23 – July 1, 2026 (Day Order 1- 6)		1. De Sauty's bridge – Determination of unknown capacitance 2. Polarimeter – Determination of specific rotation of the given solutions 3. Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material 4. Study of RS, Clocked RS, D flip flops using NAND and NOR 5. OP – AMP – Phase shift oscillator 6. UJT - Characteristics and as relaxation oscillator 7. Microprocessor 8085 - Code	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

		Conversion 8. Microprocessor 8085 - Interfacing of 7 segmented display					
July 2 – July 8, 2026 (Day Order 1- 6)		- De Sauty's bridge – Determination of unknown capacitance - Polarimeter – Determination of specific rotation of the given solutions - Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material - Study of RS, Clocked RS, D flip flops using NAND and NOR - OP – AMP – Phase shift oscillator - UJT - Characteristics and as relaxation oscillator - Microprocessor 8085 - Code Conversion - Microprocessor 8085 - Interfacing of 7 segmented display	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

July 9 – 16, 2026 (Day Order 1- 6)		1. De Sauty's bridge – Determination of unknown capacitance 2. Polarimeter – Determination of specific rotation of the given solutions 3. Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material 4. Study of RS, Clocked RS, D flip flops using NAND and NOR 5. OP – AMP – Phase shift oscillator 6. UJT - Characteristics and as relaxation oscillator 7. Microprocessor 8085 - Code Conversion 8. Microprocessor 8085 - Interfacing of 7 segmented display	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications
July 17 – 24, 2026 (Day Order 1- 6)		1. De Sauty's bridge – Determination of unknown capacitance 2. Polarimeter – Determination of specific rotation of the given	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical	Data handling, Error analysis, applying theoretical concepts to

		solutions 3. Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material 4. Study of RS, Clocked RS, D flip flops using NAND and NOR 5. OP – AMP – Phase shift oscillator 6. UJT - Characteristics and as relaxation oscillator 7. Microprocessor 8085 - Code Conversion 8. Microprocessor 8085 - Interfacing of 7 segmented display				thinking	practical applications
July 25 – 28, 2026 (Day Order 1- 3)		1. De Sauty's bridge – Determination of unknown capacitance 2. Polarimeter – Determination of specific rotation of the given solutions 3. Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material	K1-K6	4	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

		4. Study of RS, Clocked RS, D flip flops using NAND and NOR 5. OP – AMP – Phase shift oscillator 6. UJT - Characteristics and as relaxation oscillator 7. Microprocessor 8085 - Code Conversion 8. Microprocessor 8085 - Interfacing of 7 segmented display					
July 29 – Aug 3, 2026	C.A. Test - I						
Aug 4 - 6, 2026 (Day Order 4 - 6)		C.A. TEST – 1 FOR FIRST CYCLE EXPERIMENTS					
Aug 7 – 14, 2026 (Day Order 1- 6)		1. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 2. UV visible Spectrometer – Determination of absorbance of the given solution at varied concentrations 3. Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

		4. OP-AMP - 4 bit Digital – Analog R – 2R Ladder 5. Multi vibrators – Monostable and astable using 555 timer 6. Microprocessor 8085 - Traffic Signal Controller 7. Microprocessor 8085 - Stepper motor interface 8. Microprocessor 8085 - Interfacing of R-2R ladder					
Aug 17 - 24, 2026 (Day Order 1- 6)		1. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 2. UV visible Spectrometer – Determination of absorbance of the given solution at varied concentrations 3. Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483 4. OP-AMP - 4 bit Digital – Analog R – 2R Ladder 5. Multi vibrators – Monostable and astable using 555 timer 6. Microprocessor 8085 - Traffic	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

		Signal Controller 7. Microprocessor 8085 - Stepper motor interface 8. Microprocessor 8085 - Interfacing of R-2R ladder					
Aug 25 – Sep 2, 2026 (Day Order 1- 6)		1. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 2. UV visible Spectrometer – Determination of absorbance of the given solution at varied concentrations 3. Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483 4. OP-AMP - 4 bit Digital – Analog R – 2R Ladder 5. Multi vibrators – Monostable and astable using 555 timer 6. Microprocessor 8085 - Traffic Signal Controller 7. Microprocessor 8085 - Stepper motor interface 8. Microprocessor 8085 - Interfacing of R-2R ladder	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications

Sep 3 – 11, 2026 (Day Order 1- 6)		1. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 2. UV visible Spectrometer – Determination of absorbance of the given solution at varied concentrations 3. Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483 4. OP-AMP - 4 bit Digital – Analog R – 2R Ladder 5. Multi vibrators – Monostable and astable using 555 timer 6. Microprocessor 8085 - Traffic Signal Controller 7. Microprocessor 8085 - Stepper motor interface 8. Microprocessor 8085 - Interfacing of R-2R ladder	K1-K6	8	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical thinking	Data handling, Error analysis, applying theoretical concepts to practical applications
Sep 15-17, 2026 (Day Order 1 - 3)		1. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 2. UV visible Spectrometer – Determination of absorbance of the given solution at varied	K1-K6	4	CO1-5	Hands on experience defining the Objective of the experiment, experimental procedure, trouble shooting and critical	Data handling, Error analysis, applying theoretical concepts to practical

		concentrations - Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483 - OP-AMP - 4 bit Digital – Analog R – 2R Ladder - Multi vibrators – Monostable and astable using 555 timer - Microprocessor 8085 - Traffic Signal Controller - Microprocessor 8085 - Stepper motor interface - Microprocessor 8085 - Interfacing of R-2R ladder				thinking	applications
Sep 18 –23, 2026	C.A. Test – II FOR SECOND CYCLE OF EXPERIMENTS						
Sep 24 - 28, 2026 (Day 4 – 6)		- De Sauty's bridge – Determination of unknown capacitance - Polarimeter – Determination of specific rotation of the given solutions - Cornu's method – Elliptical Fringes - Determination of Young's modulus and Poisson's ratio of a material	K1-K6	4	CO1-5	Revision on all the 16 experiments and Repeat cycle	Pending experimental and calculation work Record completion

		4. Study of RS, Clocked RS, D flip flops using NAND and NOR 5. OP – AMP – Phase shift oscillator 6. UJT - Characteristics and as relaxation oscillator 7. Microprocessor 8085 - Code Conversion 8. Microprocessor 8085 - Interfacing of 7 segmented display 9. Optic Bench - Fresnel's Biprism – Determination of wavelength of monochromatic source of light 3) 10. UV visible Spectrometer – Determination of absorbance of the given solution at varied concentrations 11. Arithmetic Operations – 4-bit binary addition and subtraction using IC 7483 12. OP-AMP - 4 bit Digital – Analog R – 2R Ladder 13. Multi vibrators – Monostable and astable using 555 timer 14. Microprocessor 8085 - Traffic					
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		Signal Controller 15. Microprocessor 8085 - Stepper motor interface 16. Microprocessor 8085 - Interfacing of R-2R ladder					
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)		MODEL TEST ON ALL THE SIXTEEN EXPERIMENTS					
Oct 8 - 14, 2026 (Day Order 1 - 6)							
Oct 15 - 21, 2026 (Day Order 1- 4)	REVISION						

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