STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : **Mathematics**

Name of the Faculty : **Dr. Arul Roselet Meryline S**

Course Title : **Algebraic Structures**

Course Code : **23MT/MC/AS55**

Shift : **II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	define and recall the basic concepts of algebraic structures	**K1**
CO2	understand the concepts of groups, rings and fields	**K2**
CO3	apply appropriate methods to solve related problems in abstract algebra	**K3**
CO4	analyze and examine the concepts of groups and rings through illustrations and examples	**K4**
CO5	prove the concepts of groups, rings and fields and evaluate the related problems	**K5**

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 15 – 22, 2026 (Day Order 1- 6)	1	**Group Theory** 1.1 Elementary Properties of Groups	K1-K5	6	CO1-5	Lecture and Group Discussion	Questioning

		1.2 Finite Groups				Learning by Doing Problems	
Jun 23 – July 1, 2026 (Day Order 1- 6)	1	**Group Theory** 1.3 Subgroups 1.4 Cyclic Groups – Properties	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Slip Test
July 2 – July 8, 2026 (Day Order 1- 6)	1 2	**Group Theory** 1.4 Cyclic Groups – Classification of Subgroups of Cyclic Groups **Permutation Groups** 2.1 Cycle notation	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
July 9 – 16, 2026 (Day Order 1- 6)	2	**Permutation Groups** 2.2 Properties of Permutations	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
July 17 – 24, 2026 (Day Order 1- 6)	3	**Cosets and Lagrange's Theorem** 3.1 Properties of Cosets 3.2 Lagrange's Theorem and Consequences	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem solving

July 25 – 28, 2026 (Day Order 1- 3)	3	**Cosets and Lagrange's Theorem** 3.2 Lagrange's Theorem and Consequences 3.3 An Application of Cosets to Permutation groups	K1-K5	3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem solving
July 29 – Aug 3, 2026	**C.A. Test – I (Unit 1, Unit 2: 2.1,2.2))**						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3	**Normal Subgroups and Factor Groups** 3.4 Normal subgroups 3.5 Factor Groups	K1-K5	3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
Aug 7 – 14, 2026 (Day Order 1- 6)	4	**RingTheory** 4.3 Properties of Rings 4.4 Subrings	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Quiz **III Component Test 1** written test Unit 3.1-3.3 **(15 Marks)**

Aug 17 - 24, 2026 (Day Order 1- 6)	4	**Ring Theory** 4.5 Integral Domains 4.6 Fields 4.7 Characteristic of a Ring	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Slip Test
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	5	**Ring Theory (contd.)** 5.1 Ideals and Factor Rings 5.2 Prime Ideals and Maximal Ideals	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
Sep 3 – 11, 2026 (Day Order 1- 6)	2	**Isomorphisms** 2.6 Cayley's Theorem 2.7 Properties of Isomorphisms 2.8 Automorphisms	K1-K5	6	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Quiz
Sep 15-17, 2026 (Day Order 1 - 3)	4	**Unit 4 Group Homomorphism** 4.1 Properties of Homomorphisms 4.2 The First Isomorphism Theorem	K1-K5	3	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Quiz **III Component Test 2** written test Unit 2-2.6-2.8

							(25 Marks)
Sep 18 –23, 2026	**C.A. Test – II (Unit 3: 3.4,3.5 Unit 4, Unit 5:5.1,5.2**						
Sep 24 - 28, 2026 (Day 4 – 6)	5	**Ring Theory (contd.)** 5.3 Ring Homorphism	K1-K5	3	CO1-5	Lecture, Group Discussion Learning by Doing Problems	Problem solving
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	5	**Ring Theory (contd.)** 5.4 Properties of Ring Homomorphism	K1-K5	6	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Questioning **III Component Assignment** – Application of any concept from the syllabus **(10 Marks)**
Oct 8 - 14, 2026 (Day Order 1 - 6)	5	**Ring Theory (contd.)** 5.5 Field of Quotients	K1-K5	6	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Questioning & Problem Solving

Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**

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