Lesson plan

Subject- Abstract Algebra -26   Subject Code- M24-Mat-105   Session-2025

End Term Exams Marks-70   **Internal theory marks–30**

S.no.	Week	Syllabus
1	11 August- 16 August	Normal subgroup, quotient group, normalizer and centralizer of a non-empty subset of a group G, commutator subgroups of a group. first, second and third isomorphism theorems, correspondence theorem,Aut(G), Inn(G)
2	18 August- 23 August	automorphism group of a cyclic group, G-sets, orbit of an element in group G, Cayley's theorem. conjugate elements and conjugacy classes,Test
3	25 August – 30 August	class equation of a finite group G and its applications, Burnside theorem. normal series, composition series
4	1 September-6 September	Jordan Holder theorem, Zassenhaus lemma, Scheier's refinement theorem, solvable group, nilpotent group.Test
5	8 September- 13 September	Cyclic decomposition, even and odd permutation, Alternation group A_n,
6	15 September-20 September	simplicity of the Alternating group A_n (n>5). Cauchy's theorem,Test
7	22 September -27 September	Sylow's first, second and third theorems and its applications to group of smaller orders. groups of order p^2 and pq (q>p)
8	29 September-4 October	Modules, submodules, direct sums, finitely generated modules, cyclic module
9	6 October-11 October	. R-homomorphism, quotient module, completely reducible modules,
10	13 October-18 October	Schur's lemma, free modules, representation of linear mapping, rank of linear mapping.,Test
11	27 October- 1 November	Similar linear transformation, invariant subspaces of vector spaces, reduction of a linear transformation to triangular form, nilpotent transformation
12	3 November- 8 November	index of nilpotency of a nilpotent transformation. Cyclic subspace with respect to a nilpotent transformations,
13	10 November-15 November	uniqueness of the invariants of a nilpotent transformation. Primary decomposition theorem. Jordan blocks
14	17 November- 24 November	Jordan canonical forms, cyclic module relative to a linear transformation, rational canonical form of a linear transformation and its elementary divisors, uniqueness of elementary divisors

Lesson plan

Subject- Calculus   **Subject Code**- B23-Mat-101   **Session**-2025-26

End Term Exams Marks-50   **Internal theory marks**–20

S.no.	Week	Syllabus
1	22 july- 26 july	Introduction,ε-δ definition of limit and continuity of a real valued function, Basic properties of limits,
2	28 july-2 August	Types of discontinuities, Differentiability of functions, Application of L'Hospital rule to indeterminate forms,
3	4 August- 9 August	Successive differentiation, Leibnitz theorem,
4	11 August- 16 August	Taylor's and Maclaurin's series expansion with different forms of remainder.Test
5	18 August- 23 August	Asymptotes: Horizontal, vertical and oblique asymptotes for algebraic curves,
6	25 August – 30 August	Asymptotes for polar curves, Intersection of a curve and its asymptotes,
7	1 September-6 September	Curvature and radius of curvature of curves (cartesian, parametric, polar & intrinsic forms),
8	8 September- 13 September	Newton's method, Centre of curvature and circle of curvature.
9	15 September-20 September	Revision,Multiple points, Node, Cusp
10	22 September -27 September	Conjugate point, Tests for concavity and convexity
11	29 September-4 October	Points of inflexion, Tracing of curves,
12	6 October-11 October	Reduction formulae.Test
13	13 October-18 October	Rectification
14	27 October- 1 November	intrinsic equation of a curve, Quadrature,
15	3 November- 8 November	Area bounded by closed curves
16	10 November-15 November	Volumes and surfaces of solids of revolution.
17	17 November- 24 November	Revision