

LESSON PLAN

**B. Tech(ME) 1st Semester
Mathematics-I (Calculus and Linear Algebra)
(BSC-103A/BSCH-103A/MTU-145-V), Batches-(M11+M12)**

Week	Theory	
I	Lecture Day	Topic
	I	Evolutes and involutes
	II	Continued...
	III	Evaluation of definite and improper integrals
	IV	Continued...
	V	Beta and Gamma functions and their properties
II	I	Continued...
	II	Applications of definite integrals to evaluate surface areas.
	III	Continued...
	IV	Continued...
	V	Applications of definite integrals to evaluate volumes of revolutions.
III	I	Continued...
	II	Rolle's Theorem, Mean value theorems,
	III	Continued...
	IV	Taylor's and Maclaurin theorems with remainders;
	V	Continued...
IV	I	Continued...
	II	Maxima and minima
	III	Continued...
	IV	Convergence of sequence and series, tests for convergence

	V	Continued...
V	I	Power series and their applications
	II	Continued...
	IV	Taylor's series, series for exponential, trigonometric and logarithm functions
	V	Continued...
VI	I	Continued...
	II	Fourier series: Half range sine and cosine series,
	III	Continued...
	IV	Parseval's theorem
VII	I	Continued...
	II	Limit, continuity
	III	Continued...
	IV	Partial derivatives
	V	Continued...
VIII	I	Directional derivatives, total derivative
	II	Tangent plane and normal line;
	III	Maxima, minima and saddle points
	IV	Continued...
	V	Method of Lagrange multipliers
IX	I	Gradient, curl and divergence
	II	Inverse and rank of a matrix,
	III	Continued...
	IV	Rank-nullity theorem;
	V	Continued...
X	I	Continued...
	II	Continued...
	III	We discussed the assignments in class

	IV	System of linear equations
	V	Continued...
XI	I	Continued...
	II	Symmetric, skew-symmetric and orthogonal matrices
	III	Continued...
	IV	Eigenvalues and eigenvectors and their applications
	V	Continued...
XII	I	Continued...
	II	Diagonalization of matrices
	III	Cayley-Hamilton Theorem and their applications
	IV	Continued....
	V	Orthogonal transformation.

LESSON PLAN

B. Sc (Mathematics/Mathematics & Computing) 3rd Semester

Group Theory (MTU-201-V/BMH24-301)

Week	Theory	
I	Lecture Day	Topic
	I	Definition and examples of groups, Elementary properties of groups,
	II	Continued...
	III	composition table for finite groups
	IV	Order of a group and order of an element of a group,
II	I	Continued...
	II	Order of a group and order of an element of a group,
	III	Subgroups and examples of subgroup
	IV	Theorems of Subgroups and its Applications
III	I	Continued...
	II	Centralizer, Normalizer, Center of a group
	III	Product of two subgroups
	IV	Cyclic Group and Properties of cyclic groups
IV	I	Continued...
	II	.Cycle notation for permutations, properties of permutations
	III	Continued...
	IV	Even and odd permutations, alternating group
V	I	Cosets, properties of cosets
	II	Continued...
	IV	Lagrange's theorem and consequences including Fermat's Little theorem
VI	I	Continued...
	II	External direct product of a finite number of groups

	III	Continued...
	IV	normal subgroups and its properties
VII	I	Continued...
	II	Factor groups and their applications
	III	Continued...
	IV	Cauchy's theorem for finite abelian groups
VIII	I	Continued...
	II	Doubt discussion
	III	Continued...
	IV	Doubt discussion
IX	I	Doubt discussion
	II	Continued...
	III	Cayley's theorem and their properties
	IV	Continued...
X	I	Commutator, commutator of subgroup and its applications
	II	Continued...
	III	Continued...
	IV	index theorem for simple group
XI	I	Continued...
	II	conjugate element, conjugate class, conjugate subgroup, class of subgroup,
	III	Continued...
	IV	Group homomorphisms and their properties
XII	I	Group Isomorphism
	II	First, Second and Third isomorphism theorems for groups and their applications.
	III	Continued....

	IV	Continued....
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