SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY, VASAD

List of Presentation Topics for VCLA (2110015)

F.Y IT-I

GROUP NUMBER	ENROLLMENT NUMBER	TOPIC NAME
1	160410116001 160410116002 160410116003 160410116004 160410116005	Basic concept and geometrical interpretation of linear equation, nonlinear equation, system of linear equations, Gauss elimination method and Gauss Jordan method.
2	160410116006 160410116007 160410116008 160410116009 160410116010	Determinant, Cramer's rule, inverse using determinant and by row operation.
3	160410116011 160410116012 160410116013 160410116014 160410116015	Basic concept of Vector Space and Subspace with examples.
4	160410116017 160410116018 160410116019 160410116020 160410116021	Linear combination, linearly dependence and independence, Span, Basis and Dimension.
5	160410116022 160410116023 160410116025 160410116026 160410116027	Row Space, Column Space, Null space, Rank, Nullity and rank-nullity theorem for matrices.
6	160410116028 160410116030 160410116031 160410116032 160410116033	Eigen value, Eigen vector, Diagonalization, Caley Hamilton theorem and its application.
7	160410116034 160410116035 160410116037 160410116038 160410116039	Orthogonal vectors, Orthonormal vectors, Gram-Schmidt Process, Orthogonally diagonalization.
8	160410116041 160410116042 160410116043 160410116044 160410116045	Inner Product Space, Euclidean Inner Product, Weighted Euclidean inner product, Norm, Distance and angle between two vectors.
9	160410116046 160410116048 160410116049 160410116050 160410116051	Cauchy-Schwarz inequality, Pythagorean theorem, Orthogonal complement, Projection theorem with geometrical interpretation, Least square solution and its application.

10	160410116052 160410116054 160410116055 160410116056 160410116057	Linear Transformation & its application, Kernel, Range.
11	160410116058 160410116060 160410116061 160410116062 160410116063 160410116064	One to One and On-to function, Matrix representation of linear transformation, Similarity.
12	160410116065 160410116066 160410116067 160410116068 160410116069 160410116070	Physical interpretation of Gradient, Curl, Divergence, Solenoidal and Irrotational field, Directional derivative.