AR-304

CODE	SUBJECT	CREDITS
AR-304	STRUCTURE-III	02

FOCUS	
	To develop an understanding of basic requirement of stability, strength of material and behavior of basic structural elements and their importance in structural system. The course covers the fundamental aspects of static analysis, strength of materials and structural analysis of basic elements.

CONTENT	
	1. Condition of equilibrium of concurrent coplanar forces, methods of projections. Funicular polygon graphical method of determining the result ant of a given system of forces. Method of moments. 2. Centre of gravity, determining the centroid of simple figures. Moment if inertia, its application to sections subjected to bending, determining M.I. of simple and compound sections . 3.Types of trusses, their uses, suitability and limitations, method of analyzing a truss (analytical & graphical) 4. Assumption in strength of materials, basic terminology, brief history of strength of materials. 5. Bars subjected to change in temperature, bars of non unif orm cross section. 6. Concept of the shear force and the bending moment, S.F. and B.M. diagram for cantilever and simply supported beam with various types of loadings. S.F. & B.M. diagrams for beams with overheads solution of simple problems. Importance of S.F. & B.M. diagrams in the selection of a structure system – Discussion on case studies. 7. Brief discussion on stability, buckling of columns, short and long column, Euler's formula, Effects of end conditions on the buckling load. Solution of a few simp le problems, ways of increasing the capacity of a long column. 8.Deflection and its importance, code provisions, study of the deflected shape of simple structures. Solution of problems.

METHODOLOGY	
	Through class lectures, Presentations, site visits, cas e studies and making models & testing them.

REFERENCES:	
	-Applied Mechanics - S.B.Junarkar & H.J.Shah -Understanding Concept Of Structural Analysis & Design - J.P.Parikh -Engineering Mechanics - R.S.Khurmi -Mechanics of solids -M.N.Patel,P.V.Patel, C.S.S anghvi, J.S.Thakur