**CONTACT PERIODS: 3 (LECTURE□ PER WEEK**

**DURATION OF EXAM□□□□□ : 3 HRS**

**PROGRESSIVE MARKS□□ :□□□ 50**

**EXAM□ MARKS□□□□□□□□□□□□□□□□□□□□□□□:□□□□ 100**

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**OBJECTIVE:**

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**OUTLINE:**

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**09ENG 1.5: STRUCTURES I**

Written by Administrator
Saturday, 31 October 2009 13:01 -

1.      Principles of Statics - Scalars and Vectors. Characteristics and  classification of forces. Composition and resolution of forces. Principle of  transmissibility of forces. Resultant and equilibriant of coplanar, concurrent  and non-concurrent force systems. Equations of static equilibrium. Free-body  Diagrams. Equilibrium of coplanar, concurrent and non-concurrent force systems.  Support Reactions – Types of loading and support conditions and their  significance. Concept of statically determinate and indeterminate structures.  Determination of support reactions for statically determinate beams and  trusses.

2.      Friction – Types of friction, laws of dry friction, problems on  block, wedge, ladder

3.      Centroid and moment of Inertia – Determination of Centroid of  simple lamina (symmetrical and asymmetrical). Moment of Inertia and Radius of  Gyration of simple cross-sections of beams and columns including built-up  sections. Concept of Polar Moment of Inertia.

4.      Analysis of Trusses – Definition of perfect, deficient and  redundant trusses. Analysis of determinate trusses by method of joints and  method of sections(only theory and no problems).

**REFERENCES:**

1.      Engineering Mechanics – RK Bansal and  Sanjay Bansal, Laxmi Publications, New Delhi, Third edition.

2.      Engineering Mechanics – Ferdinand L  Singer, Harper Collins Publications, Third Edition

**REFERENCES:**