



TOTAL	12				

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

## SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **ME201**

SUBJECT NAME : **Strength Of Materials**

FACULTY NAME : **Pramandra Kumar Gupta**

DESIGNATION : **lect. Mech**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Various mechanical properties, Concept of stress and strain, Hook's law	2	Aug			
Working stress and factor of safety, Stress and strain calculations Temperature stresses	2	Aug			
Shear stresses, Poisson's ratio and volumetric strain	2	Aug			
Relationship between elastic constants (Derivation)	2	sept			
Compound Stress:, Stress components on an inclined plane	2	sept			
Mohr's circle: Principal stresses and planes, Mohr's circle method for principal stresses	2	sept			
Strain energy from stress - strain diagram, Strain energy from stress - strain diagram, Proof resilience	2	sept			
Types of loading - gradual, sudden, impact	2	oct			
Bending Moments and Shear Force: Types of support Types of support	2	oct			
Types of load, Shear force and bending moment Bending moment and shear force diagrams (for point loads, U.D.L. and their combinations)	3	oct			
Concept of moment of Inertia Radius of gyration Moment of Inertia of various section	2	oct/nov			
Moment of inertia of unsymmetrical section like: T-section, channel section, L-section etc.	2	nov			
Concept of bending stress Assumptions in theory of simple bending	2	nov			
Design criterion and section modulus	2	nov			
Shear Stress in Beams, Concept, Use of equation	2	dec			
Shear stress distribution diagram of various sections	2	dec			
Concept of deflection of a beam, Use of standard formula for calculating deflection (for point loads, U.D.L. and their combination)	2	jan			
Cantilever beam, Simply supported beam	2	jan			

Concept of column and struts, Modes of failure, Types of column; long and short Buckling loads Slenderness ratio	2	jan			
Euler's formula (without proof), Rankine's formula	2	feb			
Torsion of Shaft ,Concept of torsion, Derivation and use of torsion equation	2	feb			
Combined stress due to bending and torsion in solid and hollow shaft	2	feb			
Introduction and classification of springs, Flat carriage springs	2	feb			
Application of flat carriage springs	1	march			
Closely coiled helical springs, Application of closely coiled helical springs	2	march			
Determination of deflection, angle of twist, number of coils and stiffness under axial loading in	2	march			
Thin Cylindrical Shells, Stresses due to internal pressure, Design of thin cylinders - calculation of the various dimensions of a thin cylinder	2	march			
Circumferential stress or hoop stress	2	apr			
Combined Direct and Bending Stress, Effect of eccentricity, Stress due to eccentric load	2	apr			
Middle third rule, Quarter rule	2	apr			
<b>TOTAL</b>	<b>60</b>				