GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE310** SUBJECT NAME : **EARTHQUAKE RESISTANT STRUCTURE**

FACULTY NAME : **RAKSHA RANI SANADHYA** DESIGNATION : **LECTURER (CIVIL)**

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
Engineering seimology 1.1.Introduction 1.2 Causes of Earthquakes	2	Aug-15			
Seimology 1.3.1 Seismic Waves 1.3.2 Seismograph 1.3.3 Seismogram	2	Aug-15			
Earthquake size 1.4.1 Magnitude 1.4.2 Intensity 1.4.3 Magnitude versus intensity 1.4.4 Magnitude and intensity in seismic design	2	AUGUST, SEPTEMBER			
Classification of Earthquakes 1.6 Seismic zoning 1.6.1 Use of zoning map	2	Sep-15			
Tectonic Features of India 1.7 Seismic zones of India	2	Sep-15			
Structural Dynamics : 2.1 Loads 2.2 Effect of Earthquake motion on structures 2.3 Fundamental natural period	2	Sep-15			
Behaviour of Buildings During Earthquakes 3.1 Failure Mechanism of a Masonry Building 3.1.1 Out of plane failure 3.1.2 In plane failure 3.1.3 Connection failure	2	SEPT-15, OCT-15			
3.1.4 Diaphragm failure 3.1.5 Failure due to opening in walls 3.1.6 Pounding 3.1.7 Non structural components failure	2	Oct-15			

Earthquake damage categories 3.3 Types of damages observed in traditionally built constructions during past Earthquakes 3.3.1 Stone masonry 3.3.2 Wooden building	2	0CT-15			
3.3.3 Earthen building 3.3.4 Non-engineering reinforced concrete buildings 3.4 Common causes of damage.	2	Oct-15			
Provisions for Seismic Strengthening of Masonry Constructions : 4.1 Introduction 4.2 Earthquake resistant construction 4.3 Traditionally built masonry constructions	2	Oct-15			
Types of construction 4.5 Seismic design codes 4.6 Introduction of IS 4326, 1993 4.7 Special construction features (clause 5)	2	Nov-15			
Categories of Buildings 4.9 Codal Provisions of IS 4326 : 1993 4.10 Seismic Strengthening Arrangements (Clause 8.4) 4.10.1 Horizontal reinforcement 4.10.2 Vertical reinforcement	2	Nov-15			
ii mid term		NOV-15			
Timber construction 4.11.1 Types of timber construction	2	NOV-15,DEC-15			
Introduction of IS : 13828 : 1993 4.12.1 Earthquake resistance features of stone masonry 4.12.2 Earthquakes resistance features of burnt clay brick in weak mortar	2	Dec-15			
Introduction to IS : 13827 : 1993 4.13.1 General recommendation for improving Earthquakes resistance of earthen constructions 4.13.2 Seismic strengthening features of earthen building	2	Jan-16			

		Jan-16			
II mid term					
Seismic Performance of Reinforced Concrete Buildings : 5.1 Introduction 5.2 Flow of Inertia Forces 5.2.1 Strong column-weak beam analogy	2	Jan-16			
Effect of irregularities on performance of RC Buildings 5.3.1 Definitions of irregular building	2	Jan-16			
Identification of seismic damages in Reinforced concrete buildings	2	Feb-16			
Ductile Detailing of Reinforced Concrete Buildings : 6.1 Introduction 6.2 Codal Provision of IS 13920 : 1993 (General Specification (Clauses 5.0)	2	Feb-16			
Flexural members (clause 6.0) 6.3.1 Longitudinal Reinforcement 6.3.2 Transverse reinforcement	2	Feb-16			
Columns and frame members subjected to axial load and bending (clause 7.0) 6.4.1 Longitudinal reinforcement of columns 6.4.2 Transverse reinforcement of columns	2	Feb-16			
Special confining reinforcement 6.6 Beam column joint 6.7 Shear walls	2	FEB-16,MAR-16			
Disaster Management : 7.1 Introduction 7.2 Disaster management 7.3 Disaster rescue 7.4 Psychology of rescue	2	Mar-16			
Rescue workers 7.5.1 Qualities of the Rescuer 7.6 Rescue equipment	2	Mar-16			
Safety in Rescue operations 7.7.1 Basic precautions 7.7.2 Rescue worker safety 7.7.3 Casualty safety 7.7.4 Equipment safety 7.7.5 Hazards arise due to breakdown of public utilities	2	Mar-16			

III mid term		MAR-16,APPRIL-16			
TOTAL	54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE106** SUBJECT NAME : **APPLIED MECHANICS**

FACULTY NAME : **RAKSHA RANI SANADHYA** DESIGNATION : **LECTURER (CIVIL)**

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
1. Force 1.1 Definition 1.2 Units 1.3 Different Types of Forces.	2	Aug-15			
2. Coplanar Forces 2.1 Resolution of Forces 2.2 Law of Parallelogram of Forces	2	Aug-15			
2.3 Resultant of two or more Forces 2.4 Basic Conditions of Equilibrium 2.5 Lami's Theorem (No Proof)	2	AUGUST, SEPTEMBER			
2.6 Jib Crane 2 .7 Law of Polygon of Forces (Only Statement)	2	Sep-15			
3. Moment: 5 2 3.1 Definition, Units & Sign Convention3.2 Principle of Moments 3.3 Application of Equilibrium Conditions for non-concurrent Forces	2	Sep-15			
4. Application of Principles of Forces & Moments: 4 2 4.1 Levers & their Types.	2	Sep-15			
4.2 Reactions of Simply Supported Beams (Graphical & Analytical Method) 4.3 Steel Yard.	2	SEPT-15, OCT-15			
4.4 Lever Safety Valve 4.5 Foundry Crane	2	Oct-15			
5. Centre of Gravity: 5.1 Concept 5.2 Centroid 5.3 Calculation of C.G. of Regular Bodies	2	0CT-15			
5.4 Calculation of C.G. of Plain Geometrical Figures 6. Friction: 5 3 6.1 Types of Friction 6.2 Laws of Friction 6.3 Angle of Friction 6.4 Angle of Repose		Oct-15			
6.5 Friction on Horizontal and Inclined Plains 6.6 Application of Laws of Friction Related to Wedge, Ladder and Screw Jack.	2	Oct-15			
7. Simple Machines: 7 4 7.1 Basic Concepts 7.2 Loss in Friction 7.3 Inclined Plane	2	Nov-15			
7.4 Simple & Differential Wheel and Axle (Neglecting Rope thickness) 7.5 Screw Jack 7.6 Lifting Crabs	2	Nov-15			
CT-I		NOV-15			

7.7 Systems of Pulleys 7.8 Worm and Worm Wheel	2	NOV-15,DEC-15			
8. Rectilinear Motion: 8.1 Concept 8.2 Motion under Constant Velocity	2	Dec-15			
8.3 Motion under Constant Acceleration 8.4 Velocity-time graph and its uses.	2	Jan-16			
CT-II		Jan-16			
9.Motion under Gravity: 9.1 Concept 9.2 Vertical Motion 9.3 Smooth Inclined Plane	2	Jan-16			
10. Projectiles 10.1 Concept 10.2 Range, Maximum Height and Time of Flight	2	Jan-16			
10.3 Equation of Trajectory 10.4 Calculation of Velocity of Projectile at Certain Height And at Certain instant	2	Feb-16			
11.Newton's Laws of Motion: 11.1 Definitions 11.2 Momentum and it's Unit	2	Feb-16			
11.3 Application of Second Law of Motion 12. Impact and Collision: 12.1 Concept 12.2 Impulse and Impulsive Force	2	Feb-16			
12.3 Law of Conservation of Momentum 12.4 Collision Between Two Rigid Bodies 12.5 Newton's Experimental Law of Collision, Coefficient of Restitution	2	Feb-16			
13. Circular Motion 13.1 Concept 13.2 Motion under Constant Velocity 13.3 Motion under Constant Acceleration 13.4 Relationship between Linear Velocity and Angular Velocity13.5 Centrifugal and Centripetal Forces, their Applications 1	2	FEB-16,MAR-16			
4. Work, Power and Energy: 8 4 14.1 Work Done by a Constant Force 14.2 Work Done by Uniform Variable Force	2	Mar-16			
14.2.1 Power 14.2.1.1 Indicated Power. 14.2.1.2 Brake Power. 14.2.1.3 Efficiency	2	Mar-16			
14.2.1.4 Power required for an Engine on Horizontal and Inclined (smooth and rough) Planes 14.2.2 Energy 14.2.2.1 Potential Energy 14.2.2.2 Kinetic Energy of Rectilinear Motion 14.2.2.3 Kinetic Rnergy of Circular Motion	2	Mar-16			
CT-III		MAR-16,APPRIL-16			
TOTAL	50				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE301** SUBJECT NAME : **Theory of structure**

FACULTY NAME : **Raksha Rani Sanadhya** DESIGNATION : **LECTURER (CIVIL)**

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
Introduction of frames and types of frame	2	Aug-15			
Finding forces in members of frame by method of joint	2	Aug-15			
problems on method of joint	2	AUGUST, SEPTEMBER			
Finding forces in members of frame by method of section	2	Sep-15			
problems on method of section	2	Sep-15			
Calculation of of slope deflection of S.S.B. And cantilever beam by double integration method	2	Sep-15			
problems on double integration method	2	SEPT-15, OCT-15			
Calculation of of slope deflection of S.S.B. And cantilever beam by Macaulay's method	2	Oct-15			
problems on macaulay's method	2	0CT-15			
Calculation of of slope deflection of S.S.B. And cantilever beam by aera moment method	2	Oct-15			
problems on area moment method	2	Oct-15			
Intrduction of proped cantilever beam and drawing of S.F.D. And B.M.D.	2	Nov-15			
problems on drawing of S.F.D. And B.M.D. For proped cantilever beam	2	Nov-15			
I mid term		NOV-15			
slope and deflection of proped cantilever beam	2	NOV-15,DEC-15			

problems on drawing of S.F.D. And B.M.D. For fixed beam	2	Dec-15			
introduction of continuous beam and drawing of S.F.D. And B.M.D. By claypeyron's theorem	2	Jan-16			
II mid term		Jan-16			
drawing of maximum S.F.D. And B.M.D. For S.S.B. For rolling loads,	2	Jan-16			
drawing of maximum S.F.D. And B.M.D. For S.S.B. For rolling loads ,two point loads	2	Jan-16			
drawing of maximum S.F.D. And B.M.D. For S.S.B. For rolling loads ,series of point loads	2	Feb-16			
drawing of maximum S.F.D. And B.M.D. For S.S.B. For rolling loads	2	Feb-16			
influence line digrame for reaction,shear force and Bending moment in S.S.B.	2	Feb-16			
introduction of three hinged symmetrical parabolic arch and calculation of reaction at end of of arch	2	Feb-16			
drawing of S.F.D. And B.M.D. For three hinged arch	2	FEB-16,MAR-16			
introduction and types of retaining walls, study of stability of retaining walls	2	Mar-16			
types of indeterminacy as External and internal determinacy	2	Mar-16			
calculation of degree of indeterminacy in beams and pin jointed frames	2	Mar-16			
III mid term		MAR-16,APPRIL-16			
TOTAL	54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE302** SUBJECT NAME : **DESIGN OF STEELSTRUCTURE**

FACULTY NAME : **RAKSHA RANI SANADHYA** DESIGNATION : **LECTURER (CIVIL)**

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
Introduction : 1.1 Structural Steel 1.2 Structural Steel Sections 1.3 Steel as a structural material 1.3.1 Advantages 1.3.2 Disadvantages	2	Aug-15			
1.4 Limit State Method 1.4.1 Introduction 1.4.2 Limit state design 1.4.3 Limit state of strength 1.4.4 Limit state of serviceability 1.5 Partial safety factor for material strength 1.6 Partial safety factor for loads.	2	Aug-15			
Bolted Connections : 2.1 Types of Bolts 2.2 Definition and detailing of Bolts 2.3 Types of bolted joints	2	AUGUST, SEPTEMBER			
2.4 Failure of bolted joints in 2.5 Design strength of bolt 2.5.1 Bolts in shear 2.5.2 Bolts in Tension 2.5.3 Bolts in Bearing 2.5.4 Tension capacity of plate 2.5.5 Combined shear and tension 2.6 Efficiency of Bolted Joint	2	Sep-15			
problems on design of bolted connections	2	Sep-15			
Welded Connections : 3.1 Advantages and Disadvantage of welded joint 3.2 Permissible stresses in welds 3.3 Types of welded connections	2	Sep-15			
3.4 Design of butt and fillet welded connections subjected to axial loads	2	SEPT-15, OCT-15			
Design of Tension Members: 4.1 Net sectional area 4.2 Design strength due to yielding of gross section 4.3 Design strength due to rupture at net section 4.4 Design strength due to block shear	2	Oct-15			
4.5 Design of tension members (flats, angles and tee sections only.)	2	0CT-15			
problems on design of tension members	2	Oct-15			

Compression Members: 5.1 End conditions: Effective length, slenderness ratio, radius of gyration 5.2 Permissible stresses in compression as per IS : 800-2007 5.3 Strength of columns-single and built up sections.	2	Oct-15			
5.4 Design of angle struts. 5.5 Design of axially loaded 5.5.1 Single rolled steel section 5.5.2 Built up section	2	Nov-15			
problems on design of column	2	Nov-15			
I mid term		NOV-15			
Design of lacing	2	Nov-15			
Design of battens	2	Dec-15			
problems on design of lacing and battens	2	Jan-16			
II mid term		Jan-16			
6.2 Design of gusseted base	2	Jan-16			
Design of Beams: 7.1 Plastic methods of design 7.1.1 Plastic section modulus 7.1.2 Shape factor 7.1.3 Plastic hinge	2	Jan-16			
Methods of Plastic Analysis 7.3 Plastic analysis of structures 7.4 Shear behaviour of steel beam 7.5 Factors affecting plastic moment capacity.	2	Feb-16			
7.6 Design of laterally restrained beams	2	Feb-16			
7.7 Web buckling and crippling	2	Feb-16			
Roof Trusses: 8.1 Basic components of roof truss. 8.2 Types of loads on roof truss- 8.2.1 Dead load 8.2.2 Live load	2	Feb-16			
Design of purlins (only angle section for the given load)	2	FEB-16,MAR-16			
Plate Girder: 9.1 Components of plate girder. 9.2 Loads on plate girder. 9.3 Sketches of bolted and welded plate girder with various types of stiffeners	2	Mar-16			
7.7 Web buckling and crippling	2	Mar-16			

7.7 Web buckling and crippling	2	Mar-16			
III mid term		MAR-16,APPRIL-16			
TOTAL					