

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE306**

SUBJECT NAME : **IRRIGATION ENGG.**

FACULTY NAME : **ANKITA GAUTAM**

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
1.1 History of irrigation development in India. 1.2 Classification and different methods of irrigation. 2. Water Requirements of Crops : 2.1 Classes and availability of soil water 2.2 Depth and frequency of irrigation	2	Aug-15			
2.3 Relationship between duty, delta and base period. 2.4 Gross command area (G.C.A.) culturable commanded area (C.C.A.), culturable cultivated and uncultivated area. Intensity of irrigation 2.5 Factors affecting duty of water, methods of improving duty	2	Aug-15			
2.6 Principal crops of rajasthan and India. Sowing and harvesting time 2.7 Water requirements and rotation of different crops 2.8 Calculation of water requirement for a given irrigated area	2	Aug-15, Sep-15			
3. Hydrology: 3.1 Hydrologic cycle 3.2 Rainfall its characteristics and methods of measurement. 3.3 Run off, factors affecting run off, determination of average annual run off.	2	Sep-15			
8.7 Regime, regime slope, regime dimensions 8.8 Relation between Kennedy's critical velocity ratio and Lacey's silt factor. 8.9 Problems of sediment transport in channels	2	Sep-15			
8.10 Salient features of Kennedy's and Lacey's silt theories 8.11 Computing the losses in irrigation channels	2	Sep-15			
9. Water Logging : 9.1 Definition 9.2 Causes, effects and preventive measures 9.3 Types of canal lining brief description and advantages	2	Sep-15, Oct-15			
10. Diversion Head Works : 10.1 Typical layout of head works 10.2 Brief description, sketches and function of component parts of weir or barrage 10.3 Scouring sluices, silt excluder	2	Oct-15			
10.4 Divide-wall 10.5 Fish ladder	2	Oct-15			

10.1 Typical layout of head works 10.2 Brief description, sketches and function of component parts of weir or barrage 10.3 Scouring sluices, silt excluder 10.4 Divide-wall	2	Oct-15			
10.5 Fish ladder 10.6 Guide bank 10.7 Marginal bunds 10.8 Head regulator 10.9 Classes of weirs	2	Oct-15			
10.9.1 Rockfill weir 10.9.2 Bligh type weir 10.9.3 Khosla type weir 10.9.4 Pickup weir 10.10 Causes of failure of weirs	2	Nov-15			
11. Cross Drainage Works : 11.1 Brief description of different methods of disposal of drainage intercepted by canals 11.2 Inlet and outlet 11.3 Aqueduct and syphon aqueduct 11.4 Super passage and syphon	2	Nov-15			
CT-I		Nov-15			
11.5 Level crossing 12. Distributory Works : 12.1 Brief description and sketches of 12.1.1 Distributory head 12.1.2 Silt selective device 12.1.3 Discharge regulator	2	Nov-15			
10.6 Guide bank 10.7 Marginal bunds 10.8 Head regulator	2	Nov-15,Dec-15			
10.9 Classes of weirs 10.9.1 Rockfill weir 10.9.2 Bligh type weir	2	Dec-15			
10.9.3 Khosla type weir 10.9.4 Pickup weir	2	Jan-16			
CT-II		Jan-16			
10.10 Causes of failure of weirs. 11. Cross Drainage Works : 11.1 Brief description of different methods of disposal of drainage intercepted by canals	2	Jan-16			
11.2 Inlet and outlet 11.3 Aqueduct and syphon aq	2	Jan-16			
11.4 Super passage and syphon 11.5 Level crossing	2	Feb-16			
12. Distributory Works : 12.1 Brief description and sketches of 12.1.1 Distributory head	2	Feb-16			
12.1.2 Silt selective device 12.1.3 Discharge regulator 12.1.4 Tail escape	2	Feb-16			

12.1.5 Bed bar tail escape Well Irrigation : 13.1 Explanation of terms - well, open well tube well, shallow and deep well, ground water reservoir, mota layer, depression head, cone of depression, radius of influence critical velocity	13.	2	Feb-16			
13.2 Classification of tube well 13.2.1 Slotted wells		2	Feb-16,Mar-16			
13.2.2 Strainer wells Cavity wells 13.3 Brief description and sketches of common types of strainer	13.2.3	2	Mar-16			
13.4 Construction of strainer well - selection of site boring and lowering of casing tube, preparation of strata chart, lowering strainers, shrouding, development		2	Mar-16			
13.5 Construction of slotted and cavity wells 13.6 Duty of open wells and tube wells 13.7 Relative advantages and disadvantages of open wells and tube wells		2	Mar-16			
CT-III			Mar-16, April-16			
TOTAL		54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE106**

SUBJECT NAME : **APPLIED MECHANICS**

FACULTY NAME : **ANKITA GAUTAM**

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: 2 1 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	3AUGUST, SEPTEMBER			
2.6 Jib Crane 2.7 Law of Polygon of Forces (Only Statement)	2	Sep-15			
3. Moment 3.1 Definition, Units & Sign Convention 3.2 Principle of Moments 3.3 Application of Equilibrium Conditions for non-concurrent Forces	2	Sep-15			
4. Application of Principles of Forces & Moments 4.1 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	OCT-15			
5.4 Calculation of C.G. of Plain Geometrical Figures 6. Friction 6.1 Types of Friction 6.2 Laws of Friction 6.3 Angle of Friction 6.4 Angle of Repose	2	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 7.1 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	2	Jan-16			
9.Motion under Gravity: 9.1 Concept 9.2 Vertical Motion Smooth Inclined Plane	2	Jan-16			
9.3					
10. Projectiles 10.1 Concept Range, Maximum Height and Time of Flight	2	Jan-16			
10.2					
10.3 Equation of Trajectory Calculation of Velocity of Projectile at Certain Height And at Certain instant	2	Feb-16			
10.4					
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	2	Feb-16			
12. Impact and Collision: 12.1 Concept 12.2 Impulse and Impulsive Force					
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 Velocity 13.5 Centrifugal and Centripetal Forces, their Applications	2	FEB-16,MAR-16			
4. Work, Power and Energy 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	2	Mar-16			
14.2.2 Energy 14.2.2.1 Potential Energy 14.2.2.2 Kinetic Energy of Rectilinear Motion 14.2.2.3 Kinetic Energy of Circular Motion					
CT-III		MAR-16,APRIL-16			
TOTAL	54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE205**

SUBJECT NAME : **TRANSPORTATION ENGG.**

FACULTY NAME : **ANKITA GAUTAM**

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 about Transportation Engg. 1.1 Importance of highway transportation 1.2 Different modes of transportation 1.3 Scope of highway engineering Highway Development and Planning : 2.1 Historical development of road construction	2	Aug-15			
2.2 Necessity of highway planning 2.3 Classification of roads 2.4 Road pattern 2.5 Highway planning in India	2	Aug-15			
3. Highway Geometric Design : 3.1 Highway alignment and basic consideration governing alignment for a road 3.2 Glossaries of terms used in road geometric and their importance 3.3 Highway cross section elements 3.4 Sight distances	2	Aug-15, Sep-15			
3.5 Design of horizontal alignments 3.6 Design of vertical alignments 4. Traffic Engineering : 4.1 Scope of traffic engineering 4.2 Passenger car unit (PCU)	2	Sep-15			
4.3 Traffic control devices - signs, signals, marking, traffic islands 4.4 Causes and precaution of road accidents 4.5 On street and off street parking 4.6 Highway lighting	2	Sep-15			
Highway Materials : 5.1 Subgrade soil 5.1.1 Desirable properties 5.1.2 Highway research board classification of soils 5.1.3 CBR test	2	Sep-15			
5.2 Stone aggregates 5.2.1 Desirable properties 5.2.2 Attrition and abrasion tests 5.2.3 Crushing test 5.2.4 Impact test 5.2.5 Shape test	2	Sep-15, Oct-15			
5.3 Bituminous materials 5.3.1 Penetration test 5.3.2 Softening point test 5.3.3 Ductility, flash and fire point 5.3.4 Specific gravity test Construction of	2	Oct-15			

Roads : 6.1 Introduction 6.2 Water Bound Macadam roads 6.3 Bituminous roads 6.4 Cement concrete road	2	Oct-15			
Highway Maintenance : 7.1 Common types of road failures 7.2 Routine maintenance Road Drainage and Road Arboriculture : 8.1 Necessity of road drainage 8.2 Surface and sub surface drainage 8.3 Object of road arboriculture	2	Oct-15			
8.4 Common roadside trees 8.5 Plantation and protection of trees Bridges : 9.1 Introduction : Classification of bridges 9.1.1 Temporary bridges 9.1.2 Permanent bridges	2	Oct-15			
9.2 Selection of site of the bridges 9.3 Economical span of the bridges, calculation of discharge, velocity, afflux by various methods 9.4 Cause ways, culverts - brief description with sketches 9.5 Brief introduction to piers, abutments, wing walls and bearing.	2	Nov-15			
10. Railways : 10.1 Railways, its importance 10.2 Railway systems in India 10.3 Gauge, different gauges in India 10.4 Advantages and disadvantages of more than one gauge 10.5 Definition of a permanent way	2	Nov-15			
CT-I		Nov-15			
11. Rails : 11.1 Function of rails 11.2 Requirement of rails 11.3 Types of rail sections - Double headed rails, bull headed, flat footed rail 11.4 Standard length and weight of flat-footed rails for different gauges	2	Nov-15			
11.5 Wear of rails- its causes and effects 11.6 Failures of rails 11.7 Creep-its definition, causes, effect and prevention 11.8 Corrugated or roaring rails. 11.9 Conning of wheels	2	Nov-15,Dec- 15			
12. Sleepers : 12.1 Functions of sleepers 12.2 Characteristics of good sleeper 12.3 Different types of rail sleepers- wooden, steel, cast iron, concrete and prestressed concrete 12.4 Size and shapes of all type of sleepers 12.5 Sleeper density	2	Dec-15			
13. Ballast : 13.1 Functions of ballast 13.2 Characteristics of good ballast 13.3 Materials used as ballast - broken stone, gravel, cinder, kanker, moorum, brickbats etc. 13.4 Size and section of ballast	2	Jan-16			

CT-II		Jan-16			
13.5 Quantity of ballast 13.6 Renewal of ballast 14. Fixture and Fastenings : 14.1 Connection of rail to fish plate and welded rails 14.2 Connection of rail to sleepers	2	Jan-16			
14.3 Details of fixtures used 15. Railway Geometries : 15.1 Alignment of railway line 15.2 Typical cross sectioning singles and doubles tracks in cutting and embankment 15.3 Gradients, curve, transition length as per railway code	2	Jan-16			
15.4 Superelevation, cant deficiency 15.5 Widening of gauge on curves 16. Points and Crossing : 16.1 Necessity and details of arrangement 16.2 Sketch of a turnout	2	Feb-16			
16.3 Functions of different parts and components 16.4 Different types of point and crossing 16.5 Turnout, crossover, scissors, diamond crossing with slips, double junctions, gathering lines 16.6 Turn tables and triangles.	2	Feb-16			
17. Tracks Laying : 17.1 Plate laying 17.2 Methods of plate laying 17.3 Duties of a permanent way inspector 18. Maintenance : 18.1 Routine maintenance of formation and side slope	2	Feb-16			
18.2 Routine maintenance of ballast, fixtures and drainage 18.3 Special maintenance - replacement of defective sleeper and rails 18.4 Tools used for the maintenance of track. 19. Stations and Yards : 19.1 Classification	2	Feb-16			
19.2 Requirement and layout of station and yards 19.3 Flag station, wayside station, junction, terminal station 19.4 Passenger yards, goods yards 19.5 Marshalling yards, locomotive yards 19.6 Station equipments	2	Feb-16,Mar-16			
20. Signallings : 20.1 Classification and functions of signal 20.2 Types of signal - Semaphore, warner, shunt disc, colour light signal, outer, home, routing signal, starter, advanced starter, calling on and co-acting signals 20.3 3-aspect signals 20.4 Absolute block system	2	Mar-16			

20.5 Automatic block system 20.6 Pilot guard system 21. Tunnelling : 21.1 Introduction 21.2 Advantages and disadvantages 21.3 Methods of construction of tunnels full-face method and needle beam method	2	Mar-16			
21.4 Factors effecting the alignment of tunnels 21.5 Description and sketches of different types of tunnels 21.6 Necessity of ventilation 21.7 Method of ventilation 21.8 Drainage of tunnels 21.9 Safety precautions to be taken at the time of construction of tunnels.	2	Mar-16			
CT-III		Mar-16, April-16			
TOTAL	54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE208**

SUBJECT NAME : **BUILDING DRAWING**

FACULTY NAME : **ANKITA GAUTAM**

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
Detailed working plan, elevation and section of Two bed room residential single story building with given direction (North, South etc)	2	Aug-15			
Detailed section of the Two bed room residential single story building with given direction (North, South etc)	2	Aug-15			
Detailed working plan, elevation of Three bed room duplex bungalow with the given plot size	2	Aug-15, Sep-15			
Detailed section of the Three bed room duplex bungalow with the given plot size	2	Sep-15			
Detailed plan of above showing house drainage, water supply and electrical fittings as per BIS.	2	Sep-15			
Detailed working plan, elevation of Hostel building	2	Sep-15			
Detailed section of the Hostel building	2	Sep-15, OCT-15			
Detailed working plan, elevation of Primary health centre	2	Oct-15			
Detailed section of the Primary health centre	2	Oct-15			
Detailed working plan of School building	2	Oct-15			
Detailed elevation of School building	2	Oct-15			
Detailed section of the School building	2	Nov-15			
Detailed working plan, elevation of Panchayat bhawan	2	Nov-15			
CT-I		Nov-15			
Detailed section of the Panchayat bhawan	2	Nov-15			
Detailed working plan, elevation of Community hall	2	Nov-15, Dec.-15			
Detailed section of the Community hall	2	Dec-15			
Detailed working plan of Polytechnic college building	2	Jan-16			
CT-II		Jan-16			
Detailed elevation of Polytechnic college building	2	Jan-16			

Detailed section of the Polytechnic college building	2	Jan-16			
Detailed working plan, elevation of Office building	2	Feb-16			
Detailed section of the Office building	2	Feb-16			
Detailed working plan of Fifty bed hospital at district headquarter	2	Feb-16			
Detailed elevation of Fifty bed hospital at district headquarter	2	Feb-16			
Detailed section of the Fifty bed hospital at district headquarter	2	Feb-16,Mar-16			
Drawing of a small residential building from measurements.	2	Mar-16			
Detailed working plan, elevation through stair;case drawing of a two storied building.	2	Mar-16			
Detailed section through stair;case drawing of a two storied building	2	Mar-16			
CT-III		Mar-16,April-16			
TOTAL	54				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE210**

SUBJECT NAME : **COMPUTER AIDED DRAWING**

FACULTY NAME : **ANKITA GAUTAM**

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
Getting Started – I Starting AutoCAD – AutoCAD screen components – Starting a drawing: Open drawings, Create drawings (Start from scratch, Use a template & Use a wizard) – Invoking commands in AutoCAD – Drawing lines in AutoCAD–Co-ordinate systems:	2	Aug-15			
Co-ordinate systems: Absolute co-ordinate system, Relative co-ordinate system – Direct distance method – Saving a drawing: Save & Save As – Closing a drawing – Quitting AutoCAD	2	Aug-15			
2. Getting Started – II Opening an existing file – Concept of Object – Object selection methods: Pick by box, Window selection, Crossing Selection, All, Fence, Last, Previous, Add, Remove – Erasing objects: OOPS command, UNDO / REDO commands	2	Aug-15, Sep-15			
– ZOOM command – PAN command, Panning in real time – Setting units – Object snap, running object snap mode – Drawing circles	2	Sep-15			
3. Draw Commands ARC command – RECTANG command – ELLIPSE command, elliptical arc – POLYGON command (regular polygon)	2	Sep-15			
– PLINE command – DONUT command – POINT command – Construction Line: XLINE command, RAY command – MULTILINE command	2	Sep-15			
4. Editing Commands MOVE command – COPY command – OFFSET command – ROTATE command – SCALE command – STRETCH command – LENGTHEN command – TRIM command – EXTEND command – BREAK command – CHAMFER command	2	Sep-15, Oct-15			
– FILLET command – ARRAY command – MIRROR command – MEASURE command – DIVIDE command – EXPLODE command – MATCHPROP command – Editing with grips: PEDIT	2	Oct-15			

5. Drawing Aids Layers – Layer Properties Manager dialog box – Object Properties: Object property toolbar, Properties Window – LTSCALE Factor – Auto Tracking – REDRAW command, REGEN command	2	Oct-15			
6. Creating Text Creating single line text – Drawing special characters – Creating multiline text – Editing text – Text style	2	Oct-15			
7. Basic Dimensioning Fundamental dimensioning terms: Dimension lines, dimension text, arrowheads, extension lines, leaders,	2	Oct-15			
centre marks and centrelines, alternate units – Associative dimensions – Dimensioning methods – Drawing leader	2	Nov-15			
8. Inquiry Commands AREA – DIST – ID – LIST – DBLIST – STATUS – DWGPROPS 9. Editing Dimensions Editing dimensions by stretching – Editing dimensions by trimming & extending – Editing dimensions: DIMEDIT	2	Nov-15			
CT-I		Nov-15			
command – Editing dimension text: DIMTEDIT command – Updating dimensions – Editing dimensions using the properties window – Creating and restoring Dimension styles: DIMSTYLE	2	Nov-15			
10. Hatching BHATCH, HATCH commands – Boundary Hatch Options: Quick tab, Advance tab – Hatching around Text, Traces	2	Nov-15, Dec- 15			
Attributes, Shapes and Solids – Editing Hatch Boundary – BOUNDARY command	2	Dec-15			
Inserting Blocks: INSERT, MINSERT commands – Creating drawing files: WBLOCK command – Defining Block Attributes – Inserting Blocks with Attributes – Editing Attributes	2	Jan-16			
CT-II		Jan-16			
12. Plotting Drawings in AutoCAD PLOT command – Plot Configuration – Pen Assignments – Paper Size & Orientation Area	2	Jan-16			
– Plot Rotation & Origin – Plotting Area – Scale	2	Jan-16			
13. Draw working plan of the following. 13.1 Three bed room duplex bungalow with the given plot size	2	Feb-16			
Draw elevation of the following. 13.1 Three bed room duplex bungalow with the given plot size	2	Feb-16			
13.2 Detailed plan of above showing house drainage, and water supply as per BIS.	2	Feb-16			

13.2 Detailed plan of above showing electrical fittings as per BIS.	2	Feb-16			
Draw working plan of the Hostel building	2	Feb-16,Mar-16			
Draw elevation of the Hostel building	2	Mar-16			
Draw working plan of the School Building	2	Mar-16			
Draw elevation of the School building	2	Mar-16			
CT-III		MAR-16, April-16			
TOTAL	54				