

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT- 3		Sheet No. 1/3	
Branch		CIVIL(C03)			Semester		3
Course Code		301	Course Name		HYDRAULICS	Course code:6900	
Course Outcome 1		To measure pressure using various pressure measuring devices and to calculate hydrostatic pressure on different surfaces				Teach Hrs	Marks
Learning Outcome C0330111		Explain the terms related with Hydraulics and compute properties of fluid with given data.				6	8
Contents		Technical terms used in Hydraulics –fluid, fluid mechanics, hydraulics, hydrostatics and hydrodynamics, application of hydraulics. Physical properties of fluid Mass density, Weight density, Specific volume, Specific gravity, Surface tension and capillarity, Compressibility, Viscosity, Newton’s law of viscosity – Dynamic and kinematics viscosity. Ideal and Real liquids					
Method of Assessment		Internal: Mid Semester Exam - Pen paper test/Assignment					
Learning Outcome C0330112		Calculate pressure using various pressure measuring devices Piezometer/ U tube manometer/ U tube differential manometer				8	12
Contents		MEASUREMENT OF LIQUID PRESSURE IN PIPES: Definition of pressure and its SI unit Concept of pressure head and its unit Variation of pressure with depth of liquid Types of pressure- atmospheric gauge and absolute pressure. Conversion of pressure head of one liquid in to other Devices for pressure measurements in pipes – Piezometer, U-tube manometer, Bourdon’s pressure gauge. Explain and calculate pressure difference using differential manometer – U tube differential manometer / inverted U-tube differential manometer. Simple Numerical Problems.					
Method of Assessment		External : End semester Examination-Pen Paper Test					
Learning Outcome C0330113		Measure pressure using various pressure measuring devices Piezometer/ U tube manometer/ U tube differential manometer				6	
Content		1. Measurements of pressure and pressure head by Piezometer, U-tube manometer 2. Measurement of pressure difference by U-tube differential manometer. 3. Study of Bourdon’s gauge					

Method of Assessment	<i>Internal : Task /Experiment performance in Laboratory</i>		
Learning Outcome C0330114	Compute Total pressure and centre of pressure for horizontal/Vertical/inclined surfaces	6	8
Contents	HYDROSTATIC PRESSURE : Hydrostatic pressure at point Pascal's law Pressure diagram – Concept and use Total hydrostatic pressure and center of pressure Determination of total pressure & center of pressure on horizontal, vertical & inclined immersed surfaces Determination of total pressure & center of pressure on sides and bottom of water tanks. Numerical Problems		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Course Outcome 2	To understand fundamentals of fluid flow.	Teach Hrs	Marks
Learning Outcome C0330121	Differentiate various types of flows	3	4
Contents	FUNDAMENTALS OF FLUID FLOW : Concept of flow Gravity flow and pressure flow. Types of flow – steady and Unsteady, uniform and non-uniform, Laminar and turbulent Reynolds number and its application		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome C0330122	Calculate flow parameters using continuity equation / Bernoulli's theorem	6	8
Contents	Discharge and its units Continuity equation for fluid flow. Various forms of energies present in fluid flow-potential, kinetic, & pressure energy. Bernoulli's theorem, its assumptions and limitations. Loss of head and modified Bernoulli's theorem. Application of Bernoulli's theorem. Simple Numerical Problems.		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test Pen Paper Test</i>		
Learning Outcome C0330123	Perform experiments related to fundamentals of fluid flow	4	
Content	1. Reynolds experiment to study types of flow. 2. Verification of Bernoulli's theorem		
Method of Assessment	<i>Internal: Mid Semester Exam - Pen paper test/Assignment/quiz</i>		

Course Outcome 3	To apply basic principles of hydraulics in pipe flow	Teach Hrs	Marks
Learning Outcome C0330131	Calculate major head loss / minor head losses in pipes/ size of equivalent pipe	10	14
Contents	FLOW OF LIQUID THROUGH PIPES : Major head loss in pipes due to friction and its calculation by Darcy-Weisbach Equation, Use of Nomograms Minor loss of head in pipe flow- loss of head due to sudden Contraction, sudden expansion, at entrance and exit of pipes and in various pipe fittings. Hydraulic gradient line and Energy gradient line Pipes in series and parallel Equivalent pipe – Dupuit's equation Simple Numericals		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome C0330132	explain water hammer and siphon in pipe flow	3	4
Contents	Water hammer in pipes – cause, effects and remedial measures Siphon		
Method of Assessment	<i>Internal: Mid Semester Exam - Pen paper test /Assignment</i>		
Learning Outcome C0330133	Calculate discharge in a pipe for the given data using Venturimeter and Calculate and Determine Hydraulic coefficients of orifice	6	9
Contents	Discharge measuring device for pipe flow Venturimeter – construction & working Discharge measuring for a tank using orifice Hydraulic coefficients of orifice		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test as well as Task /Experiment performance in lab</i>		
Learning Outcome C0330134	Determine Darcy's friction factor of a pipe and hydraulic coefficients for given venturimeter and orifice	6	
Contents	1. Determination of Darcy's friction factor for given pipe. 2. Determination of coefficient of discharge for a given Venturimeter. 3. Determination of hydraulic coefficients for sharp edge orifice.		
Method of Assessment	<i>Internal : Task /Experiment performance in Laboratory</i>		
Course Outcome 4	To determine fluid flow parameters in Open channel flow	Teach Hrs	Marks
Learning Outcome C0330141	Calculate velocity and discharge using Chezy's / Manning's equation and properties of most economical channel section for rectangular/ trapezoidal channel sections	10	14
Contents	FLOW THROUGH OPEN CHANNEL : Types of channels- artificial & natural, purposes of artificial channel, Different shapes of artificial channels.		

	Geometrical properties of channel section – wetted area, wetted Perimeter, hydraulics radius. Chezy's equation and Manning's equation for calculation of discharge through an open channel Most economical channel section, conditions for most economical rectangular and trapezoidal channel sections.		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome C0330142	Explain specific energy diagram and hydraulic jump	3	4
Contents	Specific energy diagram, Froude's number and its significance. Critical, sub-critical and supercritical flow in channel. Hydraulic jump its occurrence in field, uses of hydraulic jump		
Method of Assessment	<i>Internal: Mid Semester Exam - Pen paper test / Assignment</i>		
Learning Outcome C0330143	Explain discharge / velocity measuring devices.	5	7
Contents	Discharge measuring devices – Triangular and rectangular notches, Weirs Velocity measurement devices - Floats, current meter and Pitot tube		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test/ laboratory</i>		
Learning Outcome C0330144	Determination of coefficient of discharge for given rectangular or triangular notch.	2	
Content	1. Find out coefficient of discharge for given rectangular or triangular notch.		
Method of Assessment	<i>Internal : Task /Experiment performance in lab</i>		
Course Outcome 5	To select a suitable hydraulic pump for various applications.	Teach Hrs	Marks
Learning Outcome C0330151	Describe construction and working of centrifugal pump /Reciprocating pump and recognize selection criteria of hydraulic pumps	6	8
Contents	HYDRAULIC PUMPS: Pumps - Definition and types. Suction head, delivery head, static head and manometric head. Centrifugal pump - component parts and their functions, principle of working, priming. Reciprocating pump - component parts and working. Submersible pump and Jet pump. Selection and choice of pump.		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3		Sheet No. 1/3	
Branch	Civil Engineering			Semester	III		
Course Code	302/6901	Course Name			Surveying		
Course Outcome 1	Explain the basics of surveying and apply the principles of chain surveying to make the survey plans.			Teach Hrs (T)	Marks		
Learning Outcome C0330211	Explain basics of surveying and use of equipments in chain surveying			4	8		
Contents	Definition, Object, Principles and Scope of surveying. Classification of Surveying- Primary- plain & Geodetic. Secondary- based on instruments, Methods, Object & Nature of field. Principle of chain surveying Study and use of instrument required for chain surveying- Metric chain, Tapes, Ranging rod, Arrow, Pegs, Cross Staff and Optical Square.						
Method of Assessment	External assessment -Pen Paper Test						
Learning Outcome C0330211	Describe different terminology and operations of chain surveying			6	12		
Contents	Ranging- Direct and indirect Ranging Chaining- plain and sloping ground. Different types of chain lines-Survey line, check line, tie lines and Base line Offsets- long, short. Survey station and their selection, Factors affecting the selection of survey station. Obstacles in chaining & oblique. Errors in chain surveying & applying Corrections for chain & Tape (Numerical problems).						
Method of Assessment	External assessment -Pen Paper Test						
Learning Outcome C0330211	Determine the distance with chain and tape on the ground and the area of the field.			4	8		
Contents	Chain & cross staff survey for finding area of a field (Numerical problem) Plotting of field notes Use of conventional signs.						
Method of Assessment	Internal Assessment -Pen Paper Test						
Learning Outcome C0330211	Measure the distance and taking offsets using different instruments chain/tape, cross staff/optical square.			6			

Contents	1. Measurement of distance with chain and tape on ground with direct/indirect ranging.(3) 2. taking offsets by cross staff, optical square and plot the same.(3)		
Method of Assessment	Internal :Laboratory Assessment- <i>Task /Experiment performance in Laboratory</i>		
Course Outcome 2	Perform traversing using chain and compass survey.		
Learning Outcome C0330221	Explain bearing system, terminology and working of compass survey.	6	12
Contents	Principle of Compass survey Bearing of lines, Meridian– True, magnetic and arbitrary meridian, Bearing – fore bearing, back bearing. Systems of bearings- whole circle bearing & quadrantal bearing, Conversion of bearing. Calculate included angles from bearings. Prismatic compass component, construction and use. Numerical problems on calculation of bearing, angles.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330222	Calculate corrected angles after elimination of local attraction.	4	8
Contents	Local attraction- causes, precautions to be taken to avoid it and correction of bearing affected due to local attraction. Numerical problem on local attraction.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330223	Explain traversing and plotting the details.	3	6
Contents	Traversing by chain and compass, open and closed traverse, check on open and closed traverse and graphical adjustment for closing errors. Plotting of traverse using conventional signs.		
Method of Assessment	Internal assessment -Pen Paper Test		
Learning Outcome C0330224	Perform traverseing and measure the bearings and angles using compass.	12	
Contents	1. Use of prismatic compass and measuring fore bearing and back bearing of 5-6 side closed polygon. Identifying station affected by local attraction and calculation of corrected fore bearing and back bearing.(3)		

	2. Measuring fore bearing and back bearing for an open traverse (5-6 sides), calculate direct angles between successive lines.(3) 3. Measurement of fore bearing, back bearing and length of lines of a 5-6 side closed traverse. Calculation of included angles, locating details, plotting them and adjustment of closed error graphically.(6)		
Method of Assessment	Internal :Laboratory Assessment- <i>Task /Experiment performance in Laboratory</i>		
COURSE OUTCOME 3	Apply basic techniques and engineering tools for leveling.		
Learning Outcome C0330231	Explain basics of leveling and working of Auto level.	6	12
Contents	Definitions, meaning of various terms used in leveling – Level surface, Level line, horizontal line, Vertical line, Datum surface , Reduced level, Bench mark and its types Study and use of tilting level and dumpy level. Auto level –Components, Construction, Line of sight, Line of Collimation, Bubble tube axis, temporary adjustment of auto level. Fundamental axes and their relationship. Leveling Staff – Telescopic and folding. Foresight, back sight, Intermediate sight, Change point, Height of collimation (height of instrument). Recording in level book.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330232	Calculate R.L. by different methods	9	20
Contents	Method of Reduction of levels – Height of instrument method and Rise and fall method. Arithmetical checks, Numerical problems. Computation of missing readings. Classifications of leveling - simple, differential, profile, cross sectional, fly and check leveling. Plotting L-section & Cross-section. Sources of errors in leveling, precautions and difficulties faced in leveling.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330233	Determine the R. L. Using auto level by different methods, setting out bench mark and plotting - plan, L-section and C- section.	27	
Contents	1. Use of Auto level, temporary adjustment, taking reading on levelling staff and record on field book.(3) 2. Differential leveling practice, calculation of R.L. by H.I. and rise and fall methods.(6) 3. Carrying bench mark from one station to another by fly levelling with Auto Level.(6) 4. Running longitudinal section for a road of length of 500m and take		

	cross section suitably. Plotting plan, L-section and C-section.(12)		
Method of Assessment	Internal :Laboratory Assessment- <i>Task /Experiment performance in Laboratory</i>		
COURSE OUTCOME 4	Apply basics of plane table survey for making plan.		
Learning Outcome C0330241	Explain basics of plane table survey and various operations of plane table survey	3	6
Contents	Principles of plane table survey, Accessories required. Setting out of plane table, Leveling, Centering and orientation. Situations where plane table survey is used. Use of Telescopic Alidade.		
Method of Assessment	Internal assessment -Pen Paper Test		
Learning Outcome C0330242	Describe various methods of plane table survey	3	8
Contents	Methods of plane table surveying – Radiation, Intersection, and Traversing. Merits and Demerits of plane table Surveying.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330243	Perform plane table survey by different methods and plotting.	12	
Contents	1. Plane table survey by radiation method.(3) 2. Plane table survey by intersection method.(3) 3. Plane table survey by traversing method and adjustment of closing error (if any) graphically.(6)		
Method of Assessment	Internal :Laboratory Assessment- <i>Task /Experiment performance in Laboratory</i>		

Note: Any one LO for external assessment of Psychomotor domain (practicals)

List of Experiments of Surveying:

1. Measurement of distance with chain and tape on ground with direct/indirect ranging taking offsets by cross staff, optical square and plot the same.
2. Use of prismatic compass and measuring fore bearing and back bearing of 5-6 side closed polygon. Identifying station affected by local attraction and calculation of corrected fore bearing and back bearing.
3. Measuring fore bearing and back bearing for an open traverse (5-6 sides), calculate included angles.
4. Measurement of fore bearing, back bearing and length of lines of a 5-6 side closed traverse. Calculation of included angles, locating details, plotting them and adjustment of closed error graphically.
5. Use of Auto level, temporary adjustment, taking on levelling staff and record on field book.
6. Differential levelling practice, calculation of R.L. by H.I. and rise and fall methods.
7. Carrying bench mark from one station to another by fly levelling with Auto Level.
8. Running longitudinal section for a road of length of 500m and take cross section suitably. Plotting plan, L-section and C-section.
9. Plane table survey by radiation method.
10. Plane table survey by intersection method.
11. Plane table survey by traversing method and adjustment of closing error (if any) graphically.

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE			FORMAT-3		Sheet No. 1/3	
Branch	Civil Engineering					Semester	3rd	
Course /PaperCode		303/6902	Course Name	Building Materials and Construction				
Course Outcome 1		Describe important building materials used in Construction and their uses.				Teach Hrs	Marks	
Learning Outcome CO330311		Explain properties, types and uses of stones, aggregates, bricks and tiles.				10	12	
Contents		Introduction of Building materials and construction for Civil Engineer Stones : Classification of rocks, Important Definitions: Dressing, Quarrying, Seasoning, requirement of good building stone, Characteristics of important building stones and their uses - Basalt, Limestone (Kota Stone), Sandstone, Marble, Granite, Slate, Quartzite, Gneiss, Laterite Aggregates : Classification of Aggregate ,Properties and Uses of fine Aggregate, Tests on fine aggregate (Sand) Bricks : Classification of bricks, Frog of brick, Properties of Good Brick, Different field and laboratory test on brick as per BIS: 3495; Standard bricks; Special bricks- refractory bricks, hollow blocks, fly ash bricks, paver blocks Tiles - Characteristics of good tiles , Classification of tiles, Important tiles and their uses: Mosaic , Terracotta, Ceramic, Vitreous						
Method of Assessment		External : End semester Examination-Pen Paper Test						
Learning Outcome CO330312		Perform test on bricks and fine aggregates.				10		
Contents		1. Determination of bulking of sand 2. Determination of fineness modulus by sieve analysis of fine aggregate. 3. Determination of water absorption test of bricks 4. Determination of compressive strength of bricks 5. Determination of efflorescence of bricks						
Method of Assessment		Internal : Task /Experiment performance in Laboratory						
Learning Outcome CO330313		Describe the properties of Murrum ,Lime, Cement, Mortar and basics of Concrete and carry out tests on cement.				08	10	
Contents		Murrum:- Properties of Murrum for Road work Lime: Classification, Slaking and hydraulicity, types of limes and their uses Cement : Chemical composition of cement ,Various types of cement and their						

	uses - Ordinary portland cement, rapid hardening cement, low heat cement, portland pozzolana cement, sulphate resisting cement, white and colored cement, high alumina cement, aerated cement, storage of cement, tests on cement Mortar : Definition, functions of mortar and types of mortar - Lime mortar, Surkhi mortar, cement mortar, gauged mortar, gypsum mortar, Special mortars (fire resistant mortar, Damp proofing mortar), Grout Concrete : Introduction to concrete - Definition, properties Admixtures : Types of Admixture and their functions		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome CO330314	Perform test on cement.	06	
Contents	1. Determination of Standard Consistency 2. Determination of Initial and Final Setting Time 3. Determination of compressive strength of Cement.		
Method of Assessment	<i>Internal : Task /Experiment performance in Laboratory</i>		
Course Outcome 2	Describe timber, paints and other miscellaneous building materials used in construction.	Teach Hrs	Marks
Learning Outcome CO330321	Describe timber and wood products and its uses in building construction.	05	06
Contents	Timber : Classification of trees, Characteristics of good timber, defects in timber, Preservation in timber -AsCu treatment, Chemical Salts, Oil Paints, Creosote treatment, Coal tar, Solignum paint Wood Products : Veneer, plywood, particle board, laminates, MDF, fiber board, block board their properties and uses		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome CO330322	Discuss the composition and uses of protective paints and prescribe for a given condition.	05	05
Contents	Composition of Paints, Characteristics of Good Paint Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion		
Method of Assessment	<i>Internal: Pen paper test- Mid Semester Exam /Assignment/quiz</i>		
Learning Outcome CO330323	Explain various types of other building materials used and their uses in construction.	06	07
Contents	Use and brief introduction of Ferrous metals (cast iron, mild steel, HYSD Steel), Plastic, Gypsum, Glass, Asbestos, Aluminium , Tar, Asphalt, Bitumen , PVC, CPVC, PPF, Bonding agents, Epoxy resins, Waterproofing, Termite proofing and wall cladding materials		

Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Course Outcome 3	Explain different types of structures and foundations.	Teach Hrs	Marks
Learning Outcome CO330331	Classify various types of structures and list out components of building and their functions.	04	05
Contents	Types of buildings based on occupancy, loads on structure, types of structures – load bearing structures, Framed structures Building components and their function. Substructure – foundation, plinth, DPC. Superstructure – walls, sill, lintel & arches, doors & windows, floor, roof, parapet, beams, columns, staircase, surface finishes		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome CO330332	Explain layout procedure of small buildings and important points of supervision of earthwork and excavation.	04	05
Contents	Job layout : necessity and procedures, site clearance, preparing job lay out, layout for load bearing structure and framed structure by centerline And face line method, precautions while marking layout on ground. Earthwork: excavation for foundation, timbering and strutting, earthwork for embankment, material for plinth filling. Tools and plants used for excavation and earthwork		
Method of Assessment	<i>Internal: Pen paper test- Mid Semester Exam /Assignment/quiz</i>		
Learning Outcome CO330333	Perform layout of small buildings.	06	
Contents	1. Prepare foundation plan and marking on ground layout of load bearing structure by centre line method from the given plan of the building. 2. Prepare foundation plan and marking on ground layout of framed structure by centre line method from the given plan of the building. 3. Layout of two room building by face line method.		
Method of Assessment	<i>Internal : Task /Experiment performance in Laboratory</i>		
Learning Outcome CO330334	Classify the foundations and select appropriate one based on soil conditions.	05	06
Contents	Foundation and its purpose , Types of foundations – shallow and deep Shallow foundation : Isolated Footing, Spread Footing ,Strip Footing, Raft foundation, combined footing, grillage foundation and their Constructional details Introduction to deep foundation : Pile and Well Foundation and their types Damp Proof Course : Source and effects of Dampness, Purpose, methods, materials used		

Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Course Outcome 4	Classify masonry works, doors, windows, stairs, floors and roofs.	Teach Hrs	Marks
Learning Outcome CO330341	Describe types of masonry work and related procedures.	08	10
Contents	Stone masonry: Terminologies in stone masonry. Classification of stone masonry, Rubble masonry- Uncoursed and coursed rubble masonry, point to be observed in construction of stone masonry Brick masonry: Terminologies in brick masonry, types of Bonds: English, Flemish, stretcher and header bonds. Brick laying procedure, precautions in brick masonry, tools used in brick masonry Scaffolding : Purpose and its types Shoring and Underpinning : Purpose		
Method of Assessment	<i>Internal: Pen paper test- Mid Semester Exam /Assignment/quiz</i>		
Learning Outcome CO330342	Explain types of doors, windows and stairs.	09	11
Contents	Doors : Terminologies of Doors, Brief description of different types of doors - Panelled Doors, Batten Doors, Flush Door, Collapsible Doors, Rolling Shutter, Revolving Doors, Glazed Doors Windows :Terminology of Windows, Brief description of different types of windows - Casement, Glazed, Sliding Windows , Louvered Window, pivoted, ventilators Stair case: Terminologies - landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, flight, pitch. Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), spiral stair, tread riser stair		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome CO330343	Describe types of floors and roofs.	06	07
Contents	Floors: Glossary of terms ,Types of floor finishes –concrete flooring, tile flooring, timber flooring , marble and kota flooring Roofs: Glossary of terms, Types of roofs, concept and function of flat and pitched roofs		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		

Course Outcome 5	Explain the procedure of surface finishes and concept of green building.	Teach Hrs	Marks
Learning Outcome CO330351	Recognize surface finishes i.e. plastering, pointing and painting and select the appropriate techniques of finishes.	09	11
Contents	Plastering : purpose – Types of plastering, Types of plaster finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc., Proportion of mortars used for different plasters Preparation of mortars, techniques of plastering and curing Pointing : purpose ,Types of pointing , methods of pointing Painting : objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces White washing ,Color washing , Distempering, internal and external walls		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Learning Outcome CO330352	Recognise the purpose of energy efficient buildings and rain water harvesting system in buildings.	04	05
Contents	Green Building: Concept, Purpose, Components, Energy Efficiency and Basics of rain water harvesting.		
Method of Assessment	<i>External : End semester Examination-Pen Paper Test</i>		
Total		83	100

Note: Proposed marking scheme of 100 marks is only for theory exam.

LIST OF SUGGESTED EXERCISES OF BUILDING MATERIALS AND CONSTRUCTION	
1	Identification of stones by visual examination : Basalt, Limestone (Kota Stone), Sandstone, Marble, Granite, Quartzite, Gneiss, Laterite
2	Determination of dimension, Colour, Structure, Soundness Test and Dropping Test of bricks -
3	Various Field Test (Colour Test, Lump Test etc.) of cement
4	Demonstration of tools and Plants used in building construction. -
5	Check and transfer line and level of plinth, sill, lintel, flooring, slab level of a building and writing report of the process. -

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR Building Drawing and CAD		FORMAT-3		Sheet No. 1/3	
Branch	Civil Engineering/ Construction Technology and Management			Semester		III	
Course Code	304/6903	Course Name	Building Drawing and CAD				
Course Outcome 1		Draw various types of lines, graphical symbols; recognize types of plan and appropriate scale used.			Teach Hrs	Marks	
Learning Outcome CO330411		Draw various types of lines, graphical symbols for materials, doors and windows, symbols for sanitary, water supply and electrical installations and write abbreviations as per IS 962.			5	8	
Contents		Conventions as per IS: 962 for materials used in construction. Graphical symbols for doors and windows, Abbreviations, symbols for water supply, sanitary and electrical installations. Types of lines- visible lines, centre line, hidden line, section line.					
Method of Assessment		Internal : Sketch book/ drawing work assessment					
Learning Outcome CO330412		Recognize various line types, symbols given in an existing drawing (One/Two BHK), types of plan and appropriate scale used.			5	8	
Contents		Study of existing building drawings, Selection of scale for various types of plans viz Index Map, Key plan, Site plan, Layout plan etc.					
Method of Assessment		External :Pen paper test.					
Course Outcome 2		Prepare line plans of residential/ public buildings applying principles of Planning and bye-laws.			Teach Hrs	Marks	
Learning Outcome CO330421		Explain principles of Planning, space requirement norms and bye-laws			12	18	
Contents		Principles of planning for Residential and Public building- Aspect, Prospect, Orientation, Grouping, Privacy, Elegance, Flexibility, Circulation, Furniture requirements, Sanitation, Economy.					

	Space requirement and norms for minimum dimension of different units in the residential and public buildings as per IS 962. Rules and bye-laws of sanctioning authorities for construction work. Plot area, built up area, super built up area, plinth area, carpet area, floor area and Floor Area Ratio. Basics of planning of staircase, Rise and Tread for residential and public building.		
Method of Assessment	External :Pen paper test		
Learning Outcome CO330422	Draw line plan of given residential Building	6	9
Contents	Method of preparing line plan of a residential building to suitable scale (Minimum 1BHK, staircase, WC and Bathroom) applying principles of planning.		
Method of Assessment	Internal : Sketch book/ drawing work assessment		
Learning Outcome CO330423	Draw line plan of given public building	6	9
Contents	Method of preparing line plan of public building-school building/ primary health centre/ restaurant/bank/post office/ hostel/ Function Hall and Library applying principles of planning. (Any one)		
Method of Assessment	Internal : Sketch book/ drawing work assessment(Laboratory).		
Course Outcome 3	Prepare submission and working drawing of given buildings	Teach Hrs	Marks
Learning Outcome CO330431	Recognize development of plan from line plan of a residential building	9	12
Contents	Method of development of plan from line plan of a residential building (2 BHK with Stair Case),		
Method of Assessment	Internal :Drawing work assessment.		
Learning Outcome CO330432	Draw submission drawing of single story load bearing type residential building and two storied framed structure type residential building,	15	21

Contents	Submission drawing, plan, elevation, section, site plan, schedule of openings, construction notes with specifications, area statement. Development of plan, Elevation, Section. Site plan, area statement, schedule of opening and construction notes.		
Method of Assessment	Internal : Drawing work assessment		
Learning Outcome CO330433	Draw working drawing of above single story load bearing type residential building or two storied residential building (Framed structure type)	12	15
Contents	Working drawing – Plan, elevation, section passing through staircase or WC and bath. Foundation plan of Framed Structure. Details of RCC footing, Column, Beam, Chajjas, Lintel, Staircase and slab.		
Method of Assessment	Internal : Drawing work assessment		
Course Outcome 4	Prepare submission and working drawing of given buildings using CADD	Teach Hrs	Marks
Learning Outcome CO330441	Recognize various CAD software and use CAD commands	20	
Contents	Various CAD software available in the market: AutoCAD, Felix Cad, Auto Civil, 3D Max etc.); Starting up of CAD, CAD Window, Tool bar, Drop down menu, command window, Saving of drawing. Introduction of graphic screen, WCS icon, UCS icon, co-ordinates, drawing limits, grid, snap, ortho features. Drawing commands, line, circle, polyline, multiline, ellipse, polygon etc. Editing commands – Copy, move, offset, fillet, chamfer, trim, lengthen, mirror, rotate, array etc. Working with hatches, fills, dimensioning, text etc. working with layers,		
Method of Assessment	Internal : Drawing work assessment		
Learning Outcome CO330442	Draw and print submission drawing of two storied residential building (Framed structure type)	27	
Contents	Using CAD commands draw and print submission drawing of two storied residential building (Framed structure type)		
Method of Assessment	Internal : Drawing work assessment		

Learning Outcome CO330443	Draw and print working drawing of above two storied residential building (Framed structure type)	18	
Contents	Using CAD commands draw and print working drawing of two storied residential building (Framed structure type)		
Method of Assessment	Internal : Drawing work assessment		

List of Sketches / Drawings to be prepared:	
A. Sketch Book	
1	Draw various types of lines, graphical symbols for materials, doors and windows, symbols for sanitary, water supply and electrical installations and write abbreviations as per IS 962.
2	Write summary of observations of all technical details from the given drawing (One/Two BHK) obtained from the professional architect or civil engineer (Group activity in four students)
3.	a) Measure the units of existing building (Load Bearing / Frame structure). b) Draw line plan of measured existing building at serial no 3a to the suitable scale.
4.	Draw line plan to suitable scale (Minimum 1BHK, staircase, WC and Bathroom) a) Residential Bungalows (Minimum three plans) b) Apartment (Minimum two plans)
5.	Draw line plans to suitable scale for any three Public Buildings from the following- (School Building, Primary Health Centre, Bank, Post Office, Hostel, Restaurant, Community Hall and Library).
6.	Draw the following plans for a Framed Structure (One/Two BHK) from given line plan. a. Developed plan, Elevation b. Section for above developed plan. c. Site plan for above drawings including area statement, schedule of opening and construction notes.
B	Full Imperial Size Sheet (A1)

1.	Draw submission drawing to the scale 1:100 of a single storey load bearing residential building (2BHK) with flat Roof and staircase showing: a) Developed plan and elevation b) Section passing through Stair or W.C. and Bath c) Foundation plan and schedule of openings. d) Site plan (1:200), area statement, construction notes.
2.	Draw submission drawing, to the scale of 1:100, of (G+1) Framed Structure Residential Building (2BHK) with Flat Roof and staircase showing: a) Developed plan . b) Elevation. c) Section passing through Staircase, WC and Bath d) Site plan (1:200) and area statement e) Schedule of openings and Construction Notes.
3.	Draw the above mentioned drawing at serial number (B-2) using CAD software and enclose the print out: a) Developed plan b) Elevation. c) Section passing through Staircase, W.C. and Bath d) Foundation plan . e) Site plan (1:200), area statement, Schedule of openings and construction notes.
4	Draw working drawing for above mentioned drawing at serial number (B-2) showing: a) Foundation plan to the scale 1:50 b) Detailed enlarged section of RCC column and footing with plinth filling. c) Detailed enlarged section of RCC Beam, Lintel and Chajjas. d) Detailed enlarged section of RCC staircase and slab.

RGPV (DIPLOMA WING) BHOPAL			OBE CURRICULUM FOR THE COURSE		FORMAT- 3		Sheet No. 1/3	
Branch	ALL BRANCHES				Semester		III	
Course Code		305	Course Name	PROFESSIONAL DEVELOPMENT-III				
Course Outcome 1		Student will be able to perform as the team leader of small team for solving a team problem in the given situation				Teach Hrs		Marks
Learning Outcome E0130511		Student will be able to demonstrate his/her understanding of leadership required in a team work performance				10		10
Contents		Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders						
Method of Assessment		Paper pen test						
Learning Outcome E0130512		Student will be able to play role of the leader of a team for solving a team problem in the given situation				10		15
Contents		Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders						
Method of Assessment		Student’s role play						
Course Outcome 2		Student will be able to apply professional ethics in a given problem situation						
Learning Outcome E0130521		Student will be able to demonstrate his/her understanding of professional ethics				10		10
Contents		Professional ethics, its need and importance, seven ethics common to all professionals, general code of ethics for engineers, ethical issues for engineers, common problems related to professional ethics, ethical issues, identification of ethical issues in cases for engineers.						

Method of Assessment	Paper pen test		
Learning Outcome E0130522	Student will be able to apply appropriate professional ethics in a given problem situation	10	10
Contents	Procedure of solving the problems related professional ethics, Identification of ethical issue, identification of the ethical stand, searching various possible solutions for the problem keeping ethical stand in focus, selection of appropriate solution.		
Method of Assessment	Paper pen test		
Course Outcome 3	Student will be able to plan self-learning to complete the given task	Teach Hrs	Marks
Learning Outcome E0130531	Student will be able to identify the self-learning needs for completing the given task	10	10
Contents	Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning, identification of learning needs		
Method of Assessment	Assessment through student activity		
Learning Outcome E0130532	Student will be able to plan self directed learning for completing the given task	10	10
Contents	Need for planning, need for planning self directed learning, planning self directed learning, self directed learning plan, examples.		
Method of Assessment	Assessment through student activity		

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				E	0	1	3	0	5	1	1	
COURSE NAME		Professional Development-III										
CO Description		Student will be able to perform as the team leader of small team for solving a team problem in the given situation										
LO Description		Student will be able to demonstrate his/her understanding of leadership required in a team work performance										
SCHEME OF STUDY												
S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks			
1.	Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*			*Teacher will suggest a suitable online video to be viewed by students			
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal				
1	Paper pen test	A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale.		10	Test paper and Rating Scale			Internal				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Important qualities of team leader:- will be able to												
1. to take initiatives												
2. take responsibility on behalf of group												
3. to visualize the team event and plan things for the event												
4. to take interest to carry out related activities												

5. to take interest in solving team related problems

The test questions :-

1. Explain the importance of team leadership
2. Explain important qualities of good team-leaders
3. Identify the team leader's behavior in the following list of team persons' behavior
4. Identify the team leader in the following case of team event
5. Suggest the team leader's would be course of action in the following team problem situation

Performance indicators

1. Quality of response the Q. 1
2. Quality of response to Q. 2
3. Number of correct behaviors identified in Q. 3(Max. 3 correct behaviors out of 10)
4. Correct team leader identified or not, in Q. 4
5. Correct team leader course of action suggested or not, in Q. 5

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				E	0	1	3	0	5	1	2	
COURSE NAME	Professional Development-III											
CO Description	Student will be able to perform as the leader of small team for solving a team problem in the given situation											
LO Description	Student will be able to play role of the leader of a team for solving a team problem in the given situation											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders	Case Study method	Teacher will organize a students’ team event in class/ department. Few students will be asked to play roles of team members and the leader to solve team problems under given situation. Other students will observe. Afterward, teacher will discussion with students. Teacher will organize similar events for practice.	02	08	video film*	*Teacher will suggest a suitable online video to be viewed by students					
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment			Maximum Marks	Resources Required	External / Internal					
1	Student’s role play	The teacher will organize small team events in batches in which individual students will be asked to play role of leader to solve a team problem, under given situation. Teacher will observe and assess the extent of leader’s behavior performed by students on the basis of performance indicators			15	Rating Scale	Internal					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
The assessment will be done on basis of following performance indicators:- 1. Extent to which student take initiatives 2. Extent to which student take responsibility on behalf of group 3. Extent to which student visualize the team event and plan things for the event 4. Extent to which student take interest to carryout team related activities												

5. Extent to which student take interest in solving team related problems

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					E	0	1	3	0	5	2	1	
COURSE NAME		Professional Development-III											
CO Description		Student will be able to apply professional ethics in a given problem situation											
LO Description		Student will be able to demonstrate his/her understanding of professional ethics											
SCHEME OF STUDY													
S. No.	Learning Content			Teaching – Learning Method		Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks
1	Professional ethics, its need and importance, seven ethics common to all professionals, general code of ethics for engineers, ethical issues for engineers, common problems related to professional ethics, ethical issues, identification of ethical issues in cases for engineers.			Traditional lecture method + Case Study		Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.		05	05	Handout, video film*			*Teacher will suggest a suitable online video to be viewed by students
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment		Description of Assessment			Maximum Marks		Resources Required				External / Internal	
1	Paper pen test		A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale.			10		Test paper and Rating Scale				Internal	

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. Ethics common to all professions

- honesty
- trustworthiness
- loyalty
- respect for others
- adherence to the law
- doing good and avoiding harm to others
- Accountability.

2. General code of ethics for engineers:-

1. Respect for People's Dignity and Rights
2. Responsible Practice
3. Integrity in Relationships
4. Responsibility

3. Common Ethical issues for engineers:-

- Relationships with clients, consultants, competitors, and contractors
- Ensuring legal compliance by clients, client's contractors, and others
- Conflict of interest
- Bribery and kickbacks, which might include:
Gifts, meals, services, entertainment and recreation opportunities
- Treatment of confidential or proprietary information

- Consideration of the employer's assets
- Outside employment/activities

Test Performance Indicators:-

Extent to which student will be able

1. To explain the professional ethics (2 marks)
2. To explain the need and importance of professional ethics (2 marks)
3. To explain seven ethics common to all professions (2 marks)
4. To identify the problem related to professional ethics in given list of problems (2 marks)
5. To identify the ethical issue for an engineer in a given case of professional ethics (2 marks)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					E	0	1	3	0	5	2	2	
COURSE NAME		Professional Development-III											
CO Description		Student will be able to apply professional ethics in a given problem situation											
LO Description		Student will be able to apply appropriate professional ethics in a given problem situation											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Procedure of solving the problems related professional ethics, Identification of ethical issue, identification of the ethical stand, searching various possible solutions for the problem keeping ethical stand in focus, selection of appropriate solution.	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Paper pen test	A case based test on problem of ethical issue for an engineer will be designed and administered by the teacher to assess the ability of students to solve the ethical problem; Assessment will be done through Rating Scale.	10	Test paper and Rating Scale			Internal						

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Steps in solving ethical problems:-

1. Identify the ethical issue in the problem
2. Identify the ethical stand in the problem
3. Search for various possible solutions keeping focus on the ethical stand
4. Implement the best possible solution

Performance indicators:-

1. Correctness of identified ethical issue in the problem (3 marks)
2. Correctness of identified ethical stand (3 marks)
3. Quality of suggested possible solutions (2 marks)
4. Appropriateness of selected best possible solution (2 marks)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				E	0	1	3	0	5	3	1	
COURSE NAME	Professional Development-III											
CO Description	Student will be able to plan self-learning to complete the given task											
LO Description	Student will be able to identify the self-learning needs for completing the given task											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1.	Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning, identification of learning needs	Traditional lecture method + Case Study	Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial.	05	05	Handout, video film*	*Teacher will suggest a suitable online video to be viewed by students					
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal				
1	Assessment through student activity	A Self-assessment portfolio will be prepared by the student on the task assigned by the teacher. Assessment of portfolio will be done through Rating Scale.		10	Portfolio format and Rating Scale			Internal				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
1. Lifelong learning All learning activities undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective. It is voluntary, self-initiated and self-directed learning. Examples:-												

1. We learn to use smart phones (informal learning)
2. We learn yoga by joining a one week yoga training programme organized by a private spiritual institute (formal learning).

2. Self directed learning

A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

3. Essential steps of lifelong learning

1. Identification of self learning need (what to learn)
2. Searching about how I can learn, search of learning resources and ways/means to use them for learning
3. Planning self-learning
4. Implementing the plan

4. Suggested list of tasks for practice of identification of learning needs

1. You have to repair your faulty house-hold electric iron
2. You have to daily operate the new washing machine purchased at your home
3. You have to format your PC
4. You have to attend online class using meet.google app
5. You have to share your ideas online with your distant friends. You have to arrange a webinar
6. You have to visit abroad and therefore you have to apply for passport
7. Your mother is a patient of high BP. You have to measure her BP daily two times at home with traditional BP measuring apparatus
8. Your bike is not getting started. You have to check its spark plug.
9. You have to complete bank paper formalities for bank loan to establish your small manufacturing unit
10. You have to prepare French-fries at home.

5. Self-assessment portfolio

A questionnaire in which questions are in first person and space is provided after each question to write the answer. It is prepared by the student.

6. Self-assessment portfolio questions:-

1. Can I complete this task ?
2. Is there special knowledge or skill required to complete the task ?

3. What knowledge or skill is required to complete this task ?
4. Do I have this knowledge or skill ?
5. From where I can learn this knowledge or skill. (Mention at least three sources. Sources may be people, institutions, books, websites?)
6. How I can manage to learn this knowledge or skill?

7. Indicators of performance

1. Able to identified that he/she can-not complete the given task due to lack of knowledge or skill
2. Able to identified the need for special knowledge or skill to complete the task
3. Correctness of identified knowledge or skill required to complete the task
4. Appropriateness of sources from which student can learn knowledge or skill
5. Extent of feasibility of student's way to acquire the required knowledge or skill

6. Searching about how I can learn, search of learning resources and ways/means to use them for learning
7. Planning self directed learning
8. Implementing the plan

4. Contents of the plan

1. Description of knowledge or skill to be self-learned
2. Description of selected source of learning the knowledge or skill ie people, books, institutions, websites etc.
3. Description of method of self-directed learning viz formal learning or informal learning
4. Description of additional resources / learning resources required
5. Expected time required to learn along with justification

5. Indicators of performance

1. Quality of description of knowledge or skill to be self-learned (3 marks)
2. Appropriateness of selected source of knowledge or skill learning (3 marks)
3. Appropriateness of method of self-learning (1 mark)
4. Appropriateness of additional resources / learning resources required (1 mark)
5. Appropriateness of time required to learn (1 mark)