

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE			FORMAT-3	Sheet No. 1/3
Branch		Civil Engg./Construction Tech. & Management			Semester	III
Course Code	302	Paper Code	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		<i>External assessment -Pen Paper Test</i>				
Learning Outcome C0330212		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 C0330213		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/assignment/quiz				

Learning Outcome C0330214	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/assignment/quiz		
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)		

	<p>2. Measuring fore bearing and back bearing for an open traverse (5-6 sides), calculate direct angles between successive lines.(3)</p> <p>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)</p>		
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	<p>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</p> <p>Study and use of tilting level and dumpy level.</p> <p>Auto level –Components, Construction, Line of sight, Line of Collimation, Bubble tube axis, temporary adjustment of auto level.</p> <p>Fundamental axes and their relationship. Leveling Staff – Telescopic and folding.</p> <p>Foresight, back sight, Intermediate sight, Change point, Height of collimation (height of instrument).</p> <p>Recording in level book.</p>		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330232	Calculate R.L. by different methods	5	10
Contents	Method of Reduction of levels – Height of instrument method and Rise and fall method. Arithmetical checks, Numerical problems. Computation of missing readings.		
Method of Assessment	External assessment -Pen Paper Test		
Learning Outcome C0330233	Explain different types of leveling and errors in leveling.	4	10
	<p>Classifications of leveling - simple, differential, profile, cross sectional, fly and check leveling.</p> <p>Plotting L-section & Cross-section.</p> <p>Sources of errors in leveling, precautions and difficulties faced in leveling.</p>		
Method of Assessment	Internal assessment -Pen Paper Test/assignment/quiz		
Learning Outcome C0330234	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.

