RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT -3	Sheet No.1/1

Branch	Architecture and Interior Design		Semester	III

Course Code	304		Course Name	SURVEYING & LEVELLING

Course Outcome1	Use and handle different types of surveying instruments viz. CHAIN, COMPASS, and PLANE TABLE for the field operations.	Teach Hrs	Marks
Learning Outcome 1	Student will be able to perform linear measurement using basic concepts and principles of chain surveying.	15	10

Contents	**Chain Surveying** • Introduction and definition of surveying, Classifications of surveying. • Principles and basic concepts of chain surveying: O Advantages and limitations, numerical exercises based on errors in chaining, o Ranging, offsets, obstructions, and methods o Basic term and definitions e.g. base line, tie line, main station, tie stations etc. • Instruments used in chain survey e.g. chains, offset rods, cross staff, and arrows etc.
Method of Assessment	Internal - Sessional (Progressive Test-I)
Learning Outcome 2	Student will be able to differentiate WCB system and RB system of bearing and perform angular measurement using prismatic compass. 15 15
Contents	**Compass Surveying** • Basic principle and related theories of compass surveying: o Advantages and limitations, o Basic term and definitions viz. meridians, traverse, and bearing, etc. o Systems of bearing i.e. whole circle system and reduced bearing system, o numerical exercises based on: ▪ conversion of WCB to RB or vice versa, ▪ Fore bearing to back bearing or vice versa, ▪ Elimination of local attraction, o Instruments used i.e. compass etc. o Plotting and adjustment of closing errors.
Method of Assessment	External - Theory (Written Test)

Learning Outcome 3	Student will be able to select appropriate method of Plane table surveying and prepare drawing with suitable scale.	10	20
Contents	**Plane Table Surveying** ● Principles and basic concepts ● Various methods used in plane table surveying ● Instruments used viz. plane table, alidade, plumbing fork and tripod etc. ● Advantages and limitations.		
Method of Assessment	External - Theory (Written Test)		
Course Outcome2	**Prepare level profile of a small piece of land using common leveling instrument (i.e. Dumpy Level/Auto Level).**	**Teach Hrs**	**Marks**
Learning Outcome 1	Student will be able to apply basic concept and principle of Levelling on the field.	3	10
Contents	**Levelling** ● Principle and basic concepts ● Basic terms and definitions viz. datum, level surface, level line, R.L., and bench mark etc. ● Instruments used i.e. levels, levelling staffs, and telescope etc.		
Method of Assessment	Internal - Sessional (Term work)		
Learning Outcome 2	Student will be able to prepare level profile by determining relative position of various points/stations on ground and plotting plans/maps.	10	15

Contents	● Methods of working out reduced level of stations:
	    ○ Height of instrument method,
	    ○ Rise and fall method,
	    ○ Numerical exercises related to the above,		

Method of Assessment	External – Practical		
Learning Outcome 3	Student will be able to analyze contour map.	2	10

Contents	● Contouring:
	    ○ Basic terms and definitions viz. contour, contour interval, and horizontal equivalent etc.
	    ○ Characteristics and uses of contours,
	    ○ Methods and plotting of contours,
	    ○ Contour maps of various natural features i.e. pond, hill, cliff, valley and planes etc.		

Method of Assessment	Internal - Sessional (Progressive Test-II)		
Course Outcome 3	**Student will be able to use total station in the field of engineering land survey.**	**Teach Hrs.**	**Marks**
Learning Outcome1	Student will be able to carry out survey work using Total station	05	20
Contents	**Advanced Digital Instruments:** • Introduction to advanced digital instruments i.e. Total station, o Techniques of finding angles and distances.		
Method of Assessment	External - Theory (Written Test)		
Learning Outcome2	Student will be able to prepare digital maps and workout areas / levels of small fields using advanced digital instruments (Total Station) through transfer of survey data in related software.	05	15
Contents	**Advanced Digital Instruments:** • preparation of digital map through exchange of survey data using related software.		
Method of Assessment	External – Practical		
Course Outcome 4	**Use GIS tools/ techniques to integrate GIS maps into CAD systems.**	**Teach Hrs.**	**Marks**
Learning Outcome 1	The student will be able to summarize the basic principles of GIS in the field of engineering.	05	15

Contents	**Basics Of GIS:**
	 • Introduction to Geospatial information system (GIS)
	     o Basic techniques and concepts
	     o Available tools and software		

Method of Assessment	External - Theory (Written Test)		
Learning Outcome 2	The student will be able to transfer and manage field data into CAD system.	05	20
Contents	**Basics Of GIS:** • Integration of GIS maps into CAD systems.		
Method of Assessment	Internal-Sessional (Lab work)		

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	**0**	**5**	**3**	**0**	**4**	**1**	**1**	

COURSE NAME	SURVEYING & LEVELLING
CO Description	Student will be able to use and handle different types of surveying instruments viz. Chain, Compass and Plane table for the field operations.
LO Description	Student will be able to perform linear measurement using basic concepts and principles of chain surveying.

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.1	**Chain Surveying** • Introduction and definition of surveying, Classifications of surveying. • Principles and basic concepts of chain surveying: • Advantages and limitations, numerical exercises based on errors in chaining, • Ranging, offsets, obstructions, and methods • Basic term and definitions e.g. base line, tie line, main station, tie stations etc. • Instruments used in chain survey e.g. chains, offset rods, cross staff, and arrows etc.	• Lecture • Field Demonstration	• Teacher will explain the contents • The student will perform practical in group. • Teacher will conduct quiz among students to check their knowledge.	09	06	• Chalk-Board • Projector • Field book • Stationery • Video • Lab manual	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal

1	**Progressive Test-I**	1. Objective, Short Answer and Descriptive questions	10	Instruments used in practical & Field book	Internal (Term work)
	ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)				

COURSE NAME	SURVEYING & LEVELLING
CO Description	Student will be able to use and handle different types of surveying instruments viz. Chain, Compass and Plane table for the field operations.
LO Description	Student will be able to differentiate WCB system and RB system of bearing and perform angular measurement using prismatic compass.

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks

1.2	**Compass Surveying**
	• Basic principle and related theories of compass surveying:
	➤ Advantages and limitations,
	➤ Basic term and definitions viz. meridians, traverse, and bearing, etc.
	➤ Systems of bearing i.e. whole circle system and reduced bearing system,
	➤ numerical exercises based on:
	   o conversion of WCB to RB or vice versa,
	   o Fore bearing to back bearing or vice versa,
	   o Elimination of local attraction
	➤ Instruments used i.e. compass etc.
	➤ Plotting and adjustment of closing errors.
		• Lecture
		• Field exercises
		• Video
			• Teacher will explain the contents and provide handouts to students
			• The student will perform practical in group.
				09	06	• Chalk-Board
						• Text book
						• Stationery	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal

1	**External - Theory (Written Test)**	Objective, Short Answer and Descriptive questions.	15	Instruments used in practical & Field book	External
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)					

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	**0**	**5**	**3**	**0**	**4**	**1**	**3**	

COURSE NAME	SURVEYING & LEVELLING
CO Description	Student will be able to use and handle different types of surveying instruments viz. Chain, Compass and Plane table for the field operations.
LO Description	Student will be able to select appropriate method of Plane table surveying and prepare drawing with suitable scale.

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SCHEME OF STUDY

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S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.3	**Plane Table Surveying** ➢ Principles and basic concepts ➢ Various methods used in plane table surveying ➢ Instruments used viz. plane table, alidade, plumbing fork and tripod etc. ➢ Advantages and limitations.	•Lecture • Group discussion	• Teacher will explain the contents and provide handouts to students, and guide them for study material on the internet • The student will prepare notes in the classroom.	4	6	Chalk-Board, text book, Stationery.	

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SCHEME OF ASSESSMENT

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S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	External - Theory (Written Test)	Objective, Short Answer ,and Descriptive questions	20	Instruments used in practical	External (Theory)

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ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

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RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	*0*	*5*	*3*	*0*	*4*	*2*	*1*	

COURSE NAME	**SURVEYING & LEVELLING**
CO Description	**Student will be able to prepare level profile of a small piece of land using common leveling instrument (i.e. Dumpy Level/Auto Level).**
LO Description	**Student will be able to apply basic concept and principle of Levelling on the field.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
2.1	**Levelling** ➢ Principle and basic concepts ➢ Basic terms and definitions viz. datum, level surface, level line, R.L., and bench mark etc. ➢ Instruments used i.e. levels, levelling staffs, and telescope etc.	• Lecture • Power point presentation	• Teacher will explain the contents and provide handouts to students, and guide them for study material on the internet • The student will prepare notes in the classroom.	3	-	Chalk-Board, text book, Field book, Stationery.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Sessional (Term work)	Teacher will assess student's performance based on: 1. Performance in assignment 2. Timely submission of assignment 3. Attendance in classes 4. Attitude/Behavior	10	Instruments used in practical	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code		Course Code		CO Code	LO Code	Format No. **4**
		A	*0*	*5*	*3*	*0* *4*	*2*	*2*

COURSE NAME	**SURVEYING & LEVELLING**
CO Description	**Student will be able to prepare level profile of a small piece of land using common leveling instrument (i.e. Dumpy Level/Auto Level).**
LO Description	**Student will be able to prepare level profile by determining relative position of various points/stations on ground and plotting plans/maps.**

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SCHEME OF STUDY

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S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks

2.2	• Methods of working out reduced level of stations:
	  ➢ Height of instrument method
	  ➢ Rise and fall method
	• Numerical exercises related to the above
		• Lecture
		• Field exercises
		• Video
			• Teacher will explain the contents and provide handouts to students.
			• The student will perform practical in group.
				4	6	Chalk-Board, Field book, Stationery.	

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SCHEME OF ASSESSMENT

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S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Practical	Teacher will assess student's performance based on: 1. Participation of student as individual/in a group (Leader as well as a team member) 2. Peer group learning attitude 3. Timely submission 4. Attendance	15	Instruments used in practical & Field book	External

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ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

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RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	0	5	3	0	4	2	3	

COURSE NAME	SURVEYING & LEVELLING
CO Description	Student will be able to prepare level profile of a small piece of land using common leveling instrument (i.e. Dumpy Level/Auto Level).
LO Description	Student will be able to analyze contour map.

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
2.3	● Contouring: ➢ Basic terms and definitions viz. contour, contour interval, and horizontal equivalent etc. ➢ Characteristics and uses of contours, ➢ Methods and plotting of contours, ➢ Contour maps of various natural features i.e. pond, hill, cliff, valley and planes etc.	● Lecture ● Field exercises ● Video	● Teacher will explain the contents and provide handouts to students. ● The student will perform practical in group.	2		Chalk-Board, Projector, Text book	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Progressive Test-II	Objective, Short Answer and Descriptive questions.	10	Instruments used in practical	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	0	5	3	0	4	3	1	

COURSE NAME	SURVEYING & LEVELLING
CO Description	**Student will be able to use total station in the field of engineering land survey.**
LO Description	**Student will be able to carry out survey work by taking linear as well as angular measurement using Total station..**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
3.1	**Advanced Digital Instruments:** • Introduction to advanced digital instruments i.e. Total station, ➢ Techniques of finding angles and distances.	• Lecture • PPT • Expert lecture	• Teacher will explain the contents and provide handouts to students. • The student will perform practical in group.	2	3	Chalk-Board, e-Videos, Projector, e-Books.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Written test	Teacher will assess student's performance based on: 1. Participation of student as individual/in a group (Leader as well as a team member) 2. Peer group learning attitude 3. Timely submission 4. Attendance	20	Instruments used in practical	Theory

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	**0**	**5**	**3**	**0**	**4**	**3**	**2**	

COURSE NAME	SURVEYING & LEVELLING
CO Description	**Student will be able to use total station in the field of engineering land survey.**
LO Description	**Student will be able to prepare digital maps and workout areas / levels of small fields using advanced digital instruments (Total Station) through transfer of survey data in related software.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
3.1	**Advanced Digital Instruments:** ➢ preparation of digital map through exchange of survey data using related software.	• Lecture • PPT • Workshop	• Teacher will explain the contents and provide handouts to students. • The student will perform practical in group.	2	3	Chalk-Board, e-content, Total station.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	**External - Practical**	Teacher will assess student's performance based on: 1. Participation of student as individual/in a group (Leader as well as a team member) 2. Peer group learning attitude 3. Timely submission 4. Attendance	15	Instruments used in practical	External (Practical)

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code		CO Code	LO Code	Format No. **4**
		A	**0**	**5**	**3**	**0**	**4**		
							4	**1**	

COURSE NAME	SURVEYING & LEVELLING
CO Description	**The student will be able to use GIS tools/ techniques to integrate GIS maps into CAD systems.**
LO Description	**The student will be able to summarize the basic principles of GIS in the field of engineering.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
4.1	**Basics Of GIS:** • Introduction to Geospatial information system(GIS) ➢ Basic techniques and concepts ➢ Available tools and software	• Lecture • PPT • Workshop	• Teacher will explain the contents and provide e-content related to topics. • The student will perform practical individually.	02	03		

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	**External - Theory (Written Test)**	Objective, Short Answer and Descriptive questions.	15	LAB, ArcGIS software	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	Scheme for Learning Outcome	Branch Code			Course Code			CO Code	LO Code	Format No. **4**
		A	**0**	**5**	**3**	**0**	**4**	**4**	**2**	

COURSE NAME	SURVEYING & LEVELLING
CO Description	The student will be able to use GIS tools/ techniques to integrate GIS maps into CAD systems.
LO Description	The student will be able to transfer and manage field data into CAD system.

SCHEME OF STUDY

S. No.	Learning Content	Teaching-Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
4.2	**Basics Of GIS:** • Integration of GIS maps into CAD systems.	• Lecture • e-content • Workshop	• Expert lecturer will cover the contents and provide handouts to the students. • The student will perform practical individually(Hands on practice).	02	03	LAB, ArcGIS software	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	**Internal-Sessional (Lab work)**	Teacher will assess student's performance based on: 1. Participation of student as individual/in a group (Leader as well as a team member) 2. Peer group learning attitude 3. Timely submission 4. Attendance	20	Instruments used in practical	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)