

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C	0	3	4	0	1	1		1		4
COURSE NAME		Soil Mechanics													
CO Description		Define the soil and interpret its properties related to construction to classify types of soil.													
LO Description		Explain the scope of soil mechanics and soil as three phase system and establish relationship between properties of soil													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process					Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks		
1.	Definition of soil, Importance of Soil Studies in Civil Engineering, Geological origin of soils with special reference to soil profiles in India: residual and transported soil, alluvial deposits, lake deposits, local soil found in MP, black cotton soils. Constituents of soil and representation by a phase diagram Definitions of void ratio, porosity, degree of saturation, water content, specific gravity, unit weight, bulk density/bulk unit weight, dry unit weight, saturated unit weight and submerged unit weight of soil grains and correlation between them. Simple numerical problems with the help of phase diagrams	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.					12	00	Text book, video lectures, chalk board.			NIL		
SCHEME OF ASSESSMENT															

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External /Internal
1.	Paper pen test	Students will be asked to explain geological origin of soil, representation of soil by phase diagram and various terminology like void ratio, porosity, unit weight , simple numerical problems	15	Test paper + rating scale	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.
					C	0	3	4	0	1	1		2		4
COURSE NAME		Soil Mechanics													
CO Description		Define the soil and interpret its properties related to construction to classify types of soil.													
LO Description		Classify and identify various types of soil and determine properties of soil by standard test procedures.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks								
1.	Consistency of soil, Atterberg limits of consistency: Liquid limit, plastic limit and shrinkage limit. Plasticity index. Particle size distribution test and plotting of curve, Determination of effective diameter of soil, well graded and uniformly graded soils, BIS classification of soil.	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct a quiz and give assignments to practice their knowledge.	08	00	Text book, video lectures, chalk board, Models.	NIL								
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External /Internal										
1.	Theory exam	Students will be asked to explain Atterberg limits and draw Particle size distribution curve.	10	Question paper + rating scale	Internal										
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Mid–Semester Exam - I															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No.		
					C	0	3	4	0	1	1	3	4
COURSE NAME		Soil Mechanics											
CO Description		Define the soil and interpret its properties related to construction to classify types of soil.											
LO Description		Determine water content , grain size distribution , Liquid & Plastic limit of given sample											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1.	<ol style="list-style-type: none"> 1. Determination of water content of given soil sample by oven drying method as per IS Code. 2. Determination of specific gravity by Pycnometer 3. Determination of grain size distribution of given soil sample by mechanical sieve 4. Determination of Liquid limit & Plastic limit of given soil sample as per IS Code. 	Lab demonstration, hands on practice, lab assignments	Teacher will explain the contents and provide handout to students. Teacher will demonstrate the components in lab. Students will learn through practice.	00	12	Handouts, chalk board, PPT, manual, charts, video film, models, virtual lab	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External /Internal								
1.	Laboratory test by observation	Students will be asked to perform any of the above test.		Observation schedule/check-list /rating scales /rubrics	Both								
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.
					C	0	3	4	0	1	2		1		4
COURSE NAME		Soil Mechanics													
CO Description		Describe the concept of permeability & Stress and determine permeability of given soil.													
LO Description		Understand signification of permeability and seepage and compute those													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process					Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks		
1.	Concept of permeability and its importance, Darcy's law, coefficient of permeability, factors affecting permeability. Permeability of stratified soil deposits, Methods of measurement of permeability Seepage through earthen structure, seepage velocity, seepage pressure, phreatic line, flow line and equipotential line, flow net and its application, Comparison of permeability of different soils as per Indian Standards , Simple numerical problems	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct a quiz and give assignments to practice their knowledge.					10	00	Text book, video lectures, chalk board.			NIL		
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment					Maximum Marks	Resources Required			External /Internal				
1.	Paper pen test	Students will be asked to explain concept of permeability, seepage and application of flow net.					15	Test paper+ Rating scale			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.
					C 0 3			4 0 1			2		2		4
COURSE NAME		Soil Mechanics													
CO Description		Describe the concept of permeability & Stress and determine permeability of given soil.													
LO Description		Determine permeability by constant head and falling head test using Darcy's Law.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process			Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1.	<p>1. Determination of coefficient of permeability by constant head test</p> <p>2. Determination of coefficient of permeability by falling head test.</p>	Lab demonstration, hands on practice, lab assignments	Teacher will explain the contents and provide handout to students. Teacher will demonstrate the components in lab. Students will learn through practice				06	Handouts, chalk board, PPT, manual, charts, video film, models, virtual lab.			NIL				
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment				Maximum Marks	Resources Required			External /Internal					
1.	Laboratory test by observation	Students will be asked to find out the coefficient of permeability by any of the above method.					Observation schedule/check-list /rating scales /rubrics			Both					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of Lab Work															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C 0 3			4 0 1			3		1		4
COURSE NAME		Soil Mechanics													
CO Description		Describe requirement and mechanism of compaction and explain concept of consolidation.													
LO Description		Explain compaction and consolidation of soil and methods of compaction.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process				Teach Hrs.	Pract. /Tut Hrs.	LRs Required				Remarks		
1.	Compaction - Definition and necessity of compaction Laboratory compaction test: standard and modified proctor test as per IS code, optimum water content, maximum dry density, Factors affecting Compaction, Field methods of compaction – rolling, ramming & vibration, Suitability of various compaction Equipments- smooth wheel roller, sheep foot roller, pneumatic tyred roller, Rammer and Vibrator. Determination of field density of soil, Simple Numerical problems. Consolidation, Difference between compaction and consolidation.	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct a quiz and give assignments to practice their knowledge..				08	00	Text book, video lectures, chalk board, tables.				NIL		
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment				Maximum Marks	Resources Required				External /Internal				

1.	Paper pen test	Students will be asked to explain: (1) Concept of compaction and various terminologies like OMC, MDD etc. (2) Factors affecting compaction. (3) Methods of compaction and Equipments used (4) Definition of consolidation and distinction by compaction	15	Test paper+ Rating scale	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.
					C 0 3			4 0 1			3		2		4
COURSE NAME		Soil Mechanics													
CO Description		Describe requirement and mechanism of compaction and explain concept of consolidation.													
LO Description		Determine Bulk unit weight dry unit weight of in field and MDD & OMC of given soil.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks								
1	<ol style="list-style-type: none"> 1. Determination of bulk unit weight & dry unit weight of soil in field by core cutter method as per IS Code. 2. Determination of bulk unit weight & dry unit weight of soil in field by Sand replacement method as per IS Code. 3. Determination of MDD & OMC by standard proctor test on given soil sample as per IS Code. 	Lab demonstration, hands on practice, lab assignments	Teacher will explain the contents and provide handout to students. Teacher will demonstrate the components in lab. Students will learn through practice	00	09	Handouts, chalk board, PPT, manual, charts, video film, models, virtual lab.	NIL								
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External /Internal										
1	Theory exam	<p>Students will be asked to find out</p> <ol style="list-style-type: none"> 1. Bulk unit weight and dry unit weight either by core cutter or sand replacement method. 2. MDD and OMC by standard proctor test . 		Observation schedule/check-list /rating scales /rubrics	Both										
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of Lab Work															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C	0	3	4	0	1	4		1		4
COURSE NAME		Soil Mechanics													
CO Description		Calculate shear strength of soil ,Bearing capacity of soil and Earth Pressure.													
LO Description		Determine the shear strength of soil as per coulomb's law													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process					Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks		
1.	Shear Strength of Soil - Concept and Significance of shear strength, Factors contributing to shear strength of cohesive and cohesion less soils, Coulomb's law, Determination of shearing strength by Direct shear test, Tri axial test , Unconfined compression test and Vane shear test. Drainage conditions of test and their significance , Numerical problems	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct quiz and give assignments to practice their knowledge.					08	00	Text book, video lectures, chalk board, tables.			NIL		
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment					Maximum Marks	Resources Required			External / Internal				
1.	Theory exam	Students will be asked to explain shear strength of soil .					10	Question paper + rating scale			External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
NIL															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No.
					C	0	3	4	0	1	4	2	4
COURSE NAME		Soil Mechanics											
CO Description		Calculate shear strength of soil ,Bearing capacity of soil and Earth Pressure.											
LO Description		Calculate Bearing Capacity of Soil and earth pressure.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1.	Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure. Introduction to Terzaghi’s analysis and assumptions, effect of water table on bearing capacity. Field methods for determination of bearing capacity – Plate load and Standard Penetration Test. Test procedures as per IS:1888 & IS:2131. Total and differential Settlement, Permissible values of settlement.	Interactive classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	08	00	Text book, video lectures, chalk board.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External /Internal								
1.	Theory Exam	Students will be asked to explain 1.various terminology like bearing capacity, net bearing capacity etc. 2.Terzaghi analysis, and field method for the determination of bearing capacity.	10	Question paper + rating scale	Internal								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Mid-Semester Exam –II													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C	0	3	4	0	1	4	3	4		
COURSE NAME		Soil Mechanics													
CO Description		Calculate shear strength of soil ,Bearing capacity of soil and Earth Pressure.													
LO Description		Explain and calculate Earth Pressure.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process			Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1.	Definition of Active earth pressure, Passive earth pressure, Earth pressure at rest. coefficient of earth pressure, Rankine’s theory and assumptions Use of Rankine’s formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) (ii) backfill with uniform surcharge Simple Numerical Problems	Interactive classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.			06	00	Text book, video lectures, chalk board.			NIL				
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment				Maximum Marks	Resources Required			External /Internal					
1.	Theory Exam	Students will be asked to explain and calculate Earth Pressure for various conditions.				10	Question paper + rating scale			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.
					C	0	3	4	0	1	4		4		4
COURSE NAME		Soil Mechanics													
CO Description		Calculate shear strength of soil ,Bearing capacity of soil and Earth Pressure.													
LO Description		Determine shear strength of soil using various test .													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process					Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks		
1.	<p>1. Determination of shear strength of soil using direct shear test.</p> <p>2. Determination of shear strength of soil using Laboratory Vane shear test.</p>	Lab demonstration, hands on practice, lab assignments	Teacher will explain the contents and provide handout to students. Teacher will demonstrate the components in lab. Students will learn through practice.					00	06	Handouts, chalk board, PPT, manual, charts, video film, models, virtual lab			NIL		
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment						Maximum Marks	Resources Required			External /Internal			
1.	Laboratory test by observation	Students will be asked to determine shear strength of soil by any of the above method							Observation schedule/check-list /rating scales /rubrics			Both			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Part of Lab Work															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C 0 3			4 0 1			5		1		4
COURSE NAME		Soil Mechanics													
CO Description		Explain the methods of soil exploration and soil stabilization.													
LO Description		Understand the necessity of soil exploration and method to take sampling of soil.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process				Teach Hrs.	Pract. /Tut Hrs.	LRs Required				Remarks		
1.	Necessity of site investigation & sub-soil exploration. Types of exploration – general, detailed. Method of site exploration open excavation & boring (auger, wash, rotary, percussion) . Criteria for deciding the location and number of test pits and bores. Sampling and Types of samplers. Disturbed & undisturbed soil samples	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct a quiz and give assignments to practice their knowledge.				06	00	Text book, charts, video lectures, chalk board.				NIL		
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment					Maximum Marks	Resources Required				External /Internal			
1.	Term Work	Students will be asked to explain any of the method of soil exploration and Sampling .					10	Question paper + rating scale				Internal			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
Term work – Assignments/Presentation/Seminar															

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code		LO Code		Format No.
					C	0	3	4	0	1	5		2		4
COURSE NAME		Soil Mechanics													
CO Description		Explain the methods of soil exploration and soil stabilization.													
LO Description		Explain the methods of soil stabilization and suitability of each.													
SCHEME OF STUDY															
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process			Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1.	Concept of soil stabilization, necessity of soil stabilization, Different methods of soil stabilization – Mechanical soil stabilization, lime stabilization, cement stabilization, bitumen stabilization, fly-ash stabilization	Interactive classroom teaching, assignments, quiz, presentation	Teacher will explain the contents and provide handouts to the students, teacher will conduct a quiz and give assignments to practice their knowledge.			05	00	Text book, charts, video lectures, chalk board.			NIL				
SCHEME OF ASSESSMENT															
S. No.	Method of Assessment	Description of Assessment				Maximum Marks	Resources Required			External /Internal					
1.	Theory Exam	Students will be asked to explain concept of soil stabilization and any of the stabilization method.				05	Question paper + rating scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)															
NIL															