

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				1	1	
COURSE NAME	Concrete Technology												
CO Description	Interpret properties of cement aggregates and water used in concrete.												
LO Description	Describe different properties, types , grades of cement and quality of water.												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1.	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength. Different grades of OPC and relevant BIS codes. BIS Specifications and field applications of different types of cements: Rapid hardening, Low heat, Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement. Water: Quality of water, impurities in mixing water and permissible limits of solids as per IS: 456	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory exam	Students will be asked to explain Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength. Different grades of OPC	05	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	External							

		and relevant BIS codes . BIS Specifications and field applications of different types of cements: Rapid hardening, Low heat, Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement. Water: Quality of water, impurities in mixing water and permissible limits of solids as per IS: 456				
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ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of end semester theory exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				1	2	
COURSE NAME		Concrete Technology											
CO Description		Interpret properties of cement aggregates and water used in concrete.											
LO Description		Describe types and properties of aggregates.											
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Aggregates: Requirements of good aggregate, Classification according to size and shape. Fine aggregates: Properties, size, specific gravity, bulk density, water absorption and bulking, fineness modulus and grading zone of sand, silt content and their specification as per IS 383. Concept of crushed Sand. Coarse aggregates: Properties, size, shape, surface texture, water absorption, soundness, specific gravity and bulk density, fineness modulus of coarse aggregate, grading of coarse aggregates, crushing value, impact value and abrasion value of coarse aggregates with specifications.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required			External / Internal				
1	Paper pen test	Students will be asked to explain classification and various properties of FA and CA	05	Test paper + Rating scale		Handouts, chalk board, PPT, text book, charts, video film.			Internal				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of Internal Exam – Mid Semester Test-I													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				1	3	
COURSE NAME	Concrete Technology												
CO Description	Interpret properties of cement aggregates and water used in concrete.												
LO Description	Perform various tests on cement and aggregates												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Tests on cement -fineness, soundness. Tests on aggregates: Water absorption, fineness modulus, Impact test, Crushing value	Lab demonstration, hands on practice' lab assignments.	Teacher will explain the contents and provide handouts to the students; teacher will demonstrate the components in lab. Students will learn through practice.	00	12	Handouts, chalk board, PPT, manual, charts, video film, model, virtual labs.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Laboratory tests by observation	Students will be asked to perform any of the test performed.		Question paper + viva + Rating scale	Observation schedule/check-list /rating scales /rubrics	Both							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of Practical Exam : Internal Marks for Practical : 12 Marks													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				2	1	
COURSE NAME	Concrete Technology												
CO Description	Explain different characteristics of concrete.												
LO Description	Describe properties and grades of concrete for different exposure conditions.												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Concrete: Different grades of concrete as per provisions of IS 456. Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades, maximum w/c ratio for different grades of concrete for different exposure conditions as per IS 456. Curing and its effect on concrete 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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory exam	Students will be asked to explain Different grades of concrete as per provisions of IS 456, w/c ratio, it's selection for different grades. Max w/c ratio for different grades of concrete. Curing of concrete.	05	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	Internal							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of Internal Exam – Mid Semester Test-I													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME					Branch Code			Course Code	CO Code	LO Code	Format
							C	0	3				2
COURSE NAME		Concrete Technology											
CO Description		Explain different characteristics of concrete.											
LO Description		Explain significance of properties of fresh and hardened concrete.											
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Properties of fresh concrete: Workability: Factors affecting workability of concrete. Segregation, bleeding and preventive measures. Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer. Values of workability required for different types of concrete works. Properties of Hardened concrete: factors affecting Strength, Durability and Impermeability	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory exam	Students will be asked to explain various properties of fresh and hardened concrete.	10	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of end semester theory exam													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No. 4
					C	0	3				
COURSE NAME	Concrete Technology										
CO Description	Explain different characteristics of concrete.										
LO Description	Perform tests on concrete and Interpretation of test results.										
SCHEME OF STUDY											
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Student should Perform following test: 1. Slump cone test 2. Compaction factor test Compressive strength test at different ages.	Lab demonstration, hands on practice' lab assignments.	Teacher will explain the contents and provide handouts to the students; teacher will demonstrate the components in lab. Students will learn through practice.	00	06	Handouts, chalk board, PPT, manual, charts, video film, model, virtual labs.	NIL				
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required		External / Internal			
1	Laboratory tests by observation	Students will be asked to perform any of the tests performed.		Question paper + viva + Rating scale		Observation schedule/check-list /rating scales /rubrics		Both			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
Part of Practical Exam : Internal Marks for Practical : 06 Marks											

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	O	3				3	1	
COURSE NAME	Concrete Technology												
CO Description	Prepare concrete mix of required specification.												
LO Description	Explain objective and methods of mix design.												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Concrete mix design: Objectives, various methods of mix design. Objectives and parameters of mix design, introduction to various grades as per IS:456-2000; proportioning for nominal mix design as prescribed by IS 456-2000. Difference between nominal and controlled concrete.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory exam	Students will be asked regarding objectives of mix design and its method. introduction to various grades as per IS:456-2000; proportioning for nominal mix design as prescribed by IS 456-2000. Difference between nominal and controlled concrete.	10	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of end semester theory exam													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	O	3				3	2	
COURSE NAME	Concrete Technology												
CO Description	Prepare concrete mix of required specification.												
LO Description	Design concrete mix as per IS 10262 .												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Introduction to IS-10262-2009-Code for controlled mix design. Design of concrete mix of required specifications. Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability. Mix design problems of concrete for desired mix strength or grade.	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.	07	00	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Assignments	Students will be asked to design concrete mix by IS Code method with required specifications. Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability. Mix design problems of concrete for desired mix strength or grade.	10	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	Internal							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of Internal Exam –Assignments/Seminars/Presentations													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No. 4
					C	0	3			4	
COURSE NAME	Concrete Technology										
CO Description	Carryout various concreting operations and use admixtures.										
LO Description	Explain the sequential operations of concreting in given situation.										
SCHEME OF STUDY											
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Finishing and curing of concrete. Pumping of concrete. Equipments and machineries used in concreting operations.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL				
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required	External / Internal				
1	Theory exam	Students will be asked to explain Batching, Mixing, Transportation, Placing, Compaction, Finishing and curing of concrete. Pumping of concrete. Equipments and machineries used in concreting operations.	10	Question paper + Rating scale		Handouts, chalk board, PPT, text book, charts, video film.	External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
Part of end semester theory exam											

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	O	3				4	2	
COURSE NAME	Concrete Technology												
CO Description	Carryout various concreting operations and use admixtures.												
LO Description	Explain the types of form works, their application and identify types of construction joints and defects of concrete.												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work. Stripping time for removal of form works per IS 456. Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints. Defects in concrete and its prevention methods.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Paper pen test	Students will be asked to explain Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work. Stripping time for removal of form works per IS 456. Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints. Defects in concrete and its prevention methods.	15	Test paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of end semester theory exam													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				4	3	
COURSE NAME		Concrete Technology											
CO Description		Carryout various concreting operations and use admixtures.											
LO Description		Identify and use admixtures in concrete mix as per given situation.											
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Admixtures in concrete: Purpose, properties and application for different types of admixture such as accelerating, retarding, water reducing, air entraining and super plasticizers.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory exam	Students will be asked to explain Purpose, properties and application for different types of admixture such as accelerating, retarding, water reducing, air entraining and super plasticizers.	05	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film.	External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of end semester theory exam													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No. 4
					C	0	3			5	
COURSE NAME	Concrete Technology										
CO Description	Explain special concrete, extreme weather concreting and Non destructive testing (NDT) .										
LO Description	Describe various special concrete in use.										
SCHEME OF STUDY											
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Special Concrete: Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fiber Reinforced Concrete, High performance Concrete Self-compacting concrete and light weight concrete, under water concrete	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL				
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required	External / Internal				
1	Theory Exam	Students will be asked to explain Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fiber Reinforced Concrete, High performance Concrete Self-compacting concrete and light weight concrete, under water concrete	10	Question paper + Rating scale		Handouts, chalk board, PPT, text book, charts, video film	External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
Part of end semester theory exam											

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No. 4
					C	0	3			5	
COURSE NAME	Concrete Technology										
CO Description	Explain special concrete, extreme weather concreting and Non destructive testing (NDT) .										
LO Description	Select the type of weather concreting in the given situation.										
SCHEME OF STUDY											
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition. Hot weather concreting: effect of hot weather on concrete, precautions to be taken while concreting in hot weather condition.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL				
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required	External / Internal				
1	Pen & paper Test	Students will be asked to explain effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition. Hot weather concreting: effect of hot weather on concrete, precautions to be taken while concreting in hot weather condition.	10	Test paper + Rating scale		Handouts, chalk board, PPT, text book, charts, video film	Internal				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
Part of Internal Exam – Mid Semester Test-II											

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	3				5	3	
COURSE NAME	Concrete Technology												
CO Description	Explain special concrete, extreme weather concreting and Non destructive testing (NDT) .												
LO Description	Describe the methods of NDT for the given field situation.												
SCHEME OF STUDY													
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Importance of NDT, limitations of NDT, methods of NDT. Non- destructive testing of concrete: Rebound hammer test, working principle of rebound hammer and factor affecting the rebound index, Ultrasonic pulse velocity test as per IS13311 (part 1 and 2). Interpretation of test results.	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	Handouts, chalk board, PPT, text book, charts, video film.	NIL						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal							
1	Theory Exam	Students will be asked to explain Importance of NDT, limitations of NDT, methods of NDT. Non- destructive testing of concrete: Rebound hammer test, working principle of rebound hammer and factor affecting the rebound index, Ultrasonic pulse velocity test as per IS13311 (part 1 and 2). Interpretation of test results.	05	Question paper + Rating scale	Handouts, chalk board, PPT, text book, charts, video film	External							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of end semester theory exam													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code		Course Code		CO Code	LO Code	Format No. 4
					C	0	3			5	
COURSE NAME	Concrete Technology										
CO Description	Explain special concrete, extreme weather concreting and Non destructive testing (NDT) .										
LO Description	Perform NDT of concrete by Rebound hammer.										
SCHEME OF STUDY											
S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks				
1	Student should Perform Rebound hammer Test.	Lab demonstration, hands on practice' lab assignments.	Teacher will explain the contents and provide handouts to the students; teacher will demonstrate the components in lab. Students will learn through practice.	00	02	Handouts, chalk board, PPT, manual, charts, video film, model, virtual labs.	NIL				
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria		Resources Required		External / Internal			
1	Laboratory tests by observation	Students will be asked to perform any of the tests performed.		Question paper + viva + Rating scale		Observation schedule/check-list /rating scales /rubrics		Both			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
Part of Practical Exam : Internal Marks for Practical : 02 Marks											

Note: 1. Internal practical marks of practical LOs are mentioned in additional instructions.

2. External practical exam will be of maximum 30 marks and any of the practical mentioned in LO's can be assessed.