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

Branch	Cement Technology	Semester	IV

Course Code	402	Course Name	Fluid Mechanics & Hydraulic Machinery

Course Outcome 1	**Discuss fluids, properties of fluid , pressure and its measurements.**	Teach Hrs	Marks
Learning Outcome 1	Compare different fluids on the basis of their properties/characteristics.	**06**	**10**
Contents	Definition of fluid, Types of fluid- Ideal and Real fluids, Compressible and Incompressible fluids, Newtonian and non-Newtonian fluid, viscous and non-viscous fluids, rotational and ir-rotational fluids, fluid properties- Density, Specific weight, Specific gravity, Specific volume, Vapour pressure, surface tension, capillarity, Dynamic and kinematic viscosity.		
Method of Assessment	Paper pen test (Part of Progressive Test – I)		
Learning Outcome 2	Measure pressure using simple and differential manometers.	**10**	**10**
Contents	**Pressure and Its Measurement:** Fluid pressure and its units, atmospheric pressure, gauge pressure, vacuum pressure, absolute pressure, pressure head, Pascal's law, manometers- principle, its types- Simple and Differential manometer		
Method of Assessment	Laboratory Test by Observation (Part of LW)		
Learning Outcome 3	Solve simple numerical problems based on Pascal's law.	**05**	**06**
Contents	Numerical problems based on Pascal's law, Simple and Differential manometers for pressure measurement.		
Method of Assessment	Theory exam		
Course Outcome 2	**Measure discharge using Venturimeter, Orifice-meter, Pitot-tube.**	Teach Hrs	Marks
Learning Outcome 1	Compare different fluid flow based on properties/characteristics.	**04**	**10**
Contents	**Basics of Fluid Flow:-** potential energy, kinetic energy, pressure energy, total energy, Types of fluid flow- Laminar, turbulent and transient, Steady and Unsteady, Uniform and non-uniform.		
Method of Assessment	Paper pen test (Part of progressive – II)		
Learning Outcome 2	Use Bernoulli's theorem and Continuity equation for a given situation.	**06**	**10**
Contents	Continuity equation, Bernoulli's theorem:- Assumptions, Equation and its practical applications		
Method of Assessment	Theory exam		
Learning Outcome 3	Calculate discharge using Venturimeter, Orifice-meter, Pitot-tube.	**15**	**10**

Contents	Venturimeter- Principle, Construction and working, discharge through Venturimeter, Vena contracta, Orifice- meter- Principle, Construction and working, discharge through Orifice- meter , Pitot-tube - Principle, Construction and working, hydraulic coefficients-Cc, Cv and Cd Simple numerical problem based on Continuity equation and application of Bernoulli's equation.		
Method of Assessment	Laboratory test by observation (Part of Practical Exam)		
Course Outcome 3	**Solve numerical problems based on minor, major losses in pipes and impact of jet.**	Teach Hrs	Marks
Learning Outcome 1	Measure Reynold's number and minor losses in pipes.	**11**	**10**
Contents	**Flow Through Pipes**: Laminar, turbulent and transient flow, Reynold's number, differentiation of laminar, turbulent and transient flow on the basis of Reynold's number, minor losses in pipes.		
Method of Assessment	Laboratory test by observation (Part of Practical Exam)		
Learning Outcome 2	Calculate major losses in pipe flow using Darcy's equation and Chezy's equation.	**06**	**10**
Contents	Calculate major losses in pipe flow using Darcy's equation and Chezy's equation.		
Method of Assessment	Theory exam		
Learning Outcome 3	Calculate force exerted by a jet for a given vane/plate.	**06**	**8**
Contents	**Impact of Jets:** Impact of Jet on fixed vertical flat plate, moving vertical flat plates and curved plates stationary and moving, velocity diagram. Simple numerical problems based on fixed vertical, moving plates.		
Method of Assessment	Theory exam		
Course Outcome 4	**Select a suitable hydraulic turbine for a given situation.**	Teach Hrs	Marks
Learning Outcome 1	Explain Construction, working and selection criteria of Pelton wheel, Francis and Kaplan turbine.	**15**	**16**
Contents	**Hydraulic Turbines:** Classification of hydraulic turbines, Selection of turbine on the basis of head, discharge and specific speed, Construction, working principle of Pelton wheel, Francis and Kaplan turbines. Draft tubes– function, types, and construction, Cavitation in turbines		
Method of Assessment	Theory exam		
Learning Outcome 2	Calculate Work done, Power, efficiency of the given turbine.	**06**	**10**
Contents	Simple numerical problems on work done, Power, efficiency of turbines, Layout of hydroelectric power plant.		
Method of Assessment	Theory exam		
Learning Outcome 3	Identify components of a given turbine.	**09**	**10**
Contents	Demonstration of components of Pelton wheel, Francis and Kaplan turbines.		

Method of Assessment	Laboratory test by observation(Part of Practical Exam)		
Course Outcome 5	**Describe different hydraulic pumps for a given situation.**	Teach Hrs	Marks
Learning Outcome 1	Explain construction, Principle, Working and Application of centrifugal pump.	**09**	**10**
Contents	Principle, Working and Application of centrifugal pump, Types of casing and impeller, Concept of multistage pump, Manometric head, workdone, Manometric and Overall efficiency. Calculations of overall efficiency and power required to drive pumps. Priming and its methods in centrifugal pump, Concept of Slip, Negative slip, Cavitation and separation.		
Method of Assessment	Laboratory test (Part of Practical Exam)		
Learning Outcome 2	Explain construction, Principle, Working and Application of reciprocating pump.	**06**	**10**
Contents	Construction, Principle, Working and Application of single and double acting reciprocating pump.		
Method of Assessment	Paper pen test (Part of TW)		
Learning Outcome 3	Measure overall efficiency of centrifugal pump.	**06**	**10**
Contents	Experimental determination of overall efficiency of centrifugal pump.		
Method of Assessment	Laboratory test by observation(Part of LW)		

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	1	1	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Discuss fluids, properties of fluid, pressure and its measurements.
LO Description	Compare different fluids on the basis of their properties/characteristics.

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 fluid, Types of fluid- Ideal and Real fluids, Compressible and Incompressible fluids, Newtonian and non-Newtonian fluid, viscous and non- viscous fluids, rotational and ir-rotational fluids, fluid properties- Density, Specific weight, Specific gravity, Specific volume, Vapour pressure, surface tension, capillarity, Dynamic and kinematic viscosity.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	06	00	Handouts, chalk board, PPT, text book, charts, graphs, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	Student will be asked to compare given fluids on the basis of given properties.	10	Test paper + Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of progressive I

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	1	2	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Discuss fluids, properties of fluid, pressure and its measurements.
LO Description	Measure pressure using simple and differential manometers.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Pressure and Its Measurement: Fluid pressure and its units, atmospheric pressure, gauge pressure, vacuum pressure, absolute pressure, pressure head, Pascal's law, manometers-principle, its types- Simple and Differential manometer	Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Teacher will demonstrate the procedure of lab work. The students will learn through practice.	04	06	Handouts, chalk board, PPT, text book, charts, video film, virtual lab, models.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to measure pressure using simple and differential manometers.	10	Observation schedule/check-list /rating scales /rubrics	Internal

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. 4
		C	0	1	4	0	2	1	3	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Discuss fluids, properties of fluid, pressure and its measurements.
LO Description	Solve numerical problems based on Pascal'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	Numerical problems based on Pascal's law, Simple and Differential manometers for pressure measurement.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	05	00	Handouts, chalk board, PPT, text book, charts, graphs, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate pressure using Pascal's law for a given problem.	06	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	2	1	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Measure discharge using Venturimeter, Orifice-meter, Pitot-tube.
LO Description	Compare different fluid flow based on properties/characteristics.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Basics of Fluid Flow:- potential energy, kinetic energy, pressure energy, total energy, Types of fluid flow- Laminar, turbulent and transient, Steady and Unsteady, Uniform and non-uniform	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	04	00	Handouts, chalk board, PPT, text book, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	Student will be asked to compare given fluid flows based on given properties/characteristics.	10	Question paper + Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Progressive Test – II

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	2	2	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Measure discharge using Venturimeter, Orifice-meter, Pitot-tube.
LO Description	Apply Bernoulli's theorem and Continuity equation for a 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	Continuity equation, Bernoulli's theorem:- Assumptions, Equation and its applications.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	06	00	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to apply Bernoulli's theorem and Continuity equation for a given situation.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	2	3	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Measure discharge using Venturimeter, Orifice-meter, Pitot-tube.
LO Description	Measure discharge using Venturimeter, Orifice-meter, Pitot-tube.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Venturimeter- Principle, Construction and working, discharge through Venturimeter,Venacontracta, Orifice- meter- Principle, Construction and working, discharge through Orifice- meter , Pitot-tube - Principle, Construction and working, hydraulic coefficients-Cc, Cv and Cd.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Teacher will demonstrate the procedure of lab work. The students will learn through practice.	06	09	Handouts, chalk board, PPT, text book, charts, video film, virtual lab, models.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to measure discharge in a pipe using a given instrument.	10	Observation schedule/check-list /rating scales /rubrics	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Practical Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	3	1	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Solve numerical problems based on minor, major losses in pipes and impact of jet.
LO Description	Measure Reynolds number and minor losses in pipes.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Flow Through Pipes: Laminar, turbulent and transient flow, Reynolds number, differentiation of laminar, turbulent and transient flow on the basis of Reynolds number, minor losses in pipes.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Teacher will demonstrate the procedure of lab work. The students will learn through practice.	02	09	Handouts, chalk board, PPT, text book, charts, video film, virtual lab, models..	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to measure Reynolds number and minor losses for a given pipe.	10	Observation schedule/check-list /rating scales /rubrics	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Practical Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	3	2	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Solve numerical problems based on minor, major losses in pipe flow and impact of jet.
LO Description	Calculate major losses in pipe flow using Darcy's equation and Chezy's equation.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Calculate major losses in pipe flow using Darcy's equation and Chezy's equation.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	06	00	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate major losses in flow for a given pipe.	10	Question paper + rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	3	3	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Solve numerical problems based on minor, major losses in pipe flow and impact of jet.
LO Description	Calculate force exerted by a jet for a given vane/plate

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Impact of Jets: Impact of Jet on fixed vertical flat plate, moving vertical flat plates and curved plates stationary and moving, velocity diagram. Simple numerical problems based on fixed vertical, moving plates.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	06	00	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate force exerted by a jet of water for a given vane/plate.	08	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	4	1	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Select a suitable hydraulic turbine for a given situation.
LO Description	Explain Construction, working and selection criteria of Pelton wheel, Francis and Kaplan turbine.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Hydraulic Turbines:,, Classification of hydraulic turbines, Selection of turbine on the basis of head, discharge and specific speed, Construction, working principle of Pelton wheel, Francis and Kaplan turbine. Draft tubes– function, types, and construction, cavitation in turbines	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	15	00	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain construction, working and selection criteria of a given turbine.	10	Question paper + Rating scale	External
		Student will be asked to explain function, construction and working of a draft tube.	06		

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	4	2	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Select a suitable hydraulic turbine for a given situation.
LO Description	Calculate Work done, Power, efficiency of the given turbine

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Simple numerical problems on work done, Power, efficiency of turbines, Layout of hydroelectric power plant.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	06	00	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate work done, power, efficiency of a given turbine.	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	4	3	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Select a suitable hydraulic turbine for a given situation.
LO Description	Identify components of a given turbine.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Demonstration of components of Pelton wheel, Francis and Kaplan turbine.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Teacher will demonstrate the procedure of lab work. The students will learn through practice.	00	09	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to describe function and construction of given draft tubes.	10	Observation schedule/check-list /rating scales /rubrics	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Practical Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	5	1	

COURSE NAME	Some corrections have been done in this. Sir, Please upload new format 6.
CO Description	Describe different hydraulic pumps for a given situation.
LO Description	Explain Principle, construction, working and performance of centrifugal pump.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Principle, construction, working and applications of centrifugal pump, Types of casings and impellers, Concept of multistage pump, Manometric head, Workdone, Manometric and Overall efficiency. Calculations of overall efficiency and power required to drive pumps. Priming and its methods in centrifugal pump. Concept of Slip, Negative slip, Cavitation and separation.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Students will learn the processes through the discussion with the teacher on content provided by teacher and random quiz taken by them.	09	00	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Student will be asked to explain principle, construction, working, and uses of centrifugal pump	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Theory Exam

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	1	4	0	2	5	2	

COURSE NAME	Fluid Mechanics & Hydraulic Machinery
CO Description	Describe different hydraulic pumps for a given situation.
LO Description	Measure overall efficiency of centrifugal pump

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Experimental determination of overall efficiency of a centrifugal pump.	Lab demonstration, hands on practice, lab assignment, quiz, assignments.	Teacher will demonstrate the procedure of lab work. The students will learn through practice.	00	06	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	Student will be asked to measure overall efficiency of a centrifugal pump using a given experimental setup.	10	Observation schedule/check-list /rating scales /rubrics	Internal

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. 4
		C	0	1	4	0	2	5	3	

COURSE NAME	STRENGTH OF MATERIALS
CO Description	Calculate design parameters of circular shafts and springs
LO Description	Calculate design parameters of a given spring.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Numerical Problems related to comparison of strength and weight of solid and hollow shafts. Numerical problems on closed coil helical spring to find safe load, deflection, size of coil and number of coils.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	0	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate design parameters a given spring.	10	Test paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL