RGPV (DIPLOMA WING) BHOPAL

OBE CURRICULUM FOR THE COURSE

FORMAT - 3

Sheet No.

Branch CHEMICAL Semester 4

Course Code Course Name FLUID FLOW OPERATIONS
AND MACHINERY

Course	Student will be able to understand Fluid Static,	Teach	Marks			
Outcome 1	Hydrostatic Equilibrium	Hrs				
Learning						
Outcome 1	equilibrium and able to apply in manometers					
	calculation and decanters design					
Contents	Nature of fluid, Pressure Concept, Hydrostatic					
	Equilibrium, Hydrostatic equilibrium in centrifugal					
	field, Barometeric equation, mano meter (U tube,					
	inclined, differential) decanter (Gravity and					
	Centrifugal)					
Method of	Theory Exam					
Assessment						
Course	Student will be able to understand fundamentals &					
Outcome 2	Fluid Flow					
Learning	Student will be able to explain terms related to fluid	8	5			
Outcome 1	flow					
Contents	Potential flow, velocity field, the 1 dimensional flow,					
	velocity gradient, rate of shear, shear stress field,					
	viscosity, kinematic viscosity, Newtonian and non-					
	newtonian fluid.					
Method of	Paper Pen Test					
Assessment						
Learning	Student will be able to explain behaviour of flowing fluids.	8	5			
Outcome 2						
Contents	Boundary layer, Boundary layer formation, separation and wake formation, Boundary layer in straight tube, Reynolds number, Laminar flow, Transition Flow, Turbulent Flow, Transition from laminar to turbulent flow.					
Method of	Theory Exam					
Assessment						
Course	Student will be able to understand the basic equations of fluid					
Outcome 3	flow.					
Learning	Student will be able to explain theory and calculate parameters	8	10			
Outcome 1	of flowing fluids.					

Contents	Stream lines and stream tubes, equation of continuity average		
Contents	and mass velocity, momentum balance, momentum correction		
	factor.		
Method of	Paper Pen Test		
Assessment			
Learning	Student will be able to explain theory of Bernoulli equation	8	10
Outcome 2	and its application in fluid flow system.		
Contents	The Bernoulli equation without frication, mechanical energy		
0 0 1 1 0 1 1 0 1	equation, kinetic energy correction factor, correction in		
	Bernoulli equation for fluid friction, pump work in Bernoulli		
	equation.		
Method of	Theory Exam		
Assessment			
Learning	Student will be able to verify kinetic energy, potential energy	10	10
Outcome 3	and pressure energy by Bernoulli equation in given flow		
Contents	system. Perform in laboratory to verify Bernoulli equation		
Contents	Laboratory Test by observation		
Method of	Laboratory Test by observation		
Assessment			
Course	Student will be able to understand flow of incompressible fluid in conduits.		
Outcome 4			
Learning	Student will be able to understand theory and able to calculate	6	5
Outcome 1	shear stress and skin friction for Newtonian fluid in pipe.		
Contents	Shear stress distribution in tubes, relation between skin friction		
	and wall shear. The friction factor, relation between skin		
Madhad af	friction parameters Paper Pen Test		
Method of	raper ren rest		
Assessment		0	1.0
Learning	Student will be able to understand theory of laminar flow of Newtonian fluid in pipe.	8	10
Outcome 2	- 1		
Contents	Relation between local velocity and maximum velocity, average velocity, kinetic energy and momentum correction		
	factor derivation, Hagen-Poiseuille equation, flow through		
	channels of non circular cross-section, friction factor chart.		
Method of	Theory Exam		
Assessment			
Learning	Student will be able to calculate head loss in given fluid flow	8	10
Outcome 3	system.	-	-
Contents	Effect of roughness, friction losses from change in velocity,		
	flow direction, sudden expansion, sudden contraction, system		
	fittings and valves.		
Method of	Theory Exam		
Assessment			
Learning	Student will be able to evaluate head loss in fluid flow system.	9	20
Outcome 4			

Contonta	Head loss in the system due to friction, sudden expansion, and				
Contents					
Method of					
Assessment					
Course	Student will be able to select fittings and machinery for given				
Outcome 5	fluid flow system.				
Learning	Student will be able to explain pipe fitting and valves.	10	10		
Outcome 1					
Contents	Pipe and tube size, selection of size, flow controlling valve, Gate valve, Globe valve, Ball valve, Butter fly valve, Check valves, Diaphragm valve, Joints and Fittings.				
Method of	Paper Pen Test				
Assessment					
Learning Outcome 2	Student will be able to explain construction and working of pumps.	12	15		
Contents	Classification of pumps				
Contents	Construction and working of centrifugal pump. Developed head, Cavitation, suction lift, NPSH, capacity, power and speed, priming, characteristics curves. Construction and working of Reciprocating Pump and Gear Pump. Elementary idea about, compressors, blowers and jet ejector.				
Method of	Theory Exam				
Assessment					
Learning Outcome 3	Student will be able to explain metering of fluids in pipe and open channels.	12	10		
Contents	Principal, construction and working of venturimeter, orificemeter, rotameter and pitot tube. Classification of notches and weir Discharge over rectangular and triangular notch.				
Method of	Theory Exam				
Assessment					
Learning Outcome 4	Student will be able to calculate discharge through pipe by venturi meter and orifice meter in a given system.	10	10		
Contents	Perform in laboratory to verify discharge coefficient.				
Method of	Laboratory Test by observation				
Assessment					
Learning Outcome 5	Student will be able to calculate discharge by triangular and rectangular notch for given system.	12	10		
Contents	Perform in laboratory to verify discharge coefficient.				
Method of	Laboratory Test by observation				
	Laboratory Test by observation				
Assessment					

RGPV (Diploma	Wing) Bhopal
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SCHEME FOR LEARNING OUTCOME

Branch Code Code Code Code Format N	Format No. 4							
\boldsymbol{C}	0	2				1	1	

COURSE NAME	FLUID FLOW OPERATIONS AND MACHINERY
CO Description	Student will be able to understand Fluid Static, Hydrostatic Equilibrium
LO Description	Student will be able to explain theory of hydrostatic equilibrium and able to apply in manometers calculation and decanters design

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Nature of fluid, Pressure Concept, Hydrostatic Equilibrium, Hydrostatic equilibrium in centrifugal field, Barometeric equation, mano meter (U tube, inclined, differential) decanter (Gravity and Centrifugal)	Method	Faculty will explain learning content. To identify students weakness assignment will be given and accordingly remedial and tutorials will be taken.	8	2	Suggested text book handouts power point	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

SCHEME FOR LEARNING OUTCOME

Branch Code	Cou	Course Code		CO Code	LO Code	Format No. 4		
\boldsymbol{C}	0	2				2	1	

COURSE NAME	FLUID FLOW OPERATIONS AND MACHINERY
CO Description	Student will be able to understand fundamentals & Fluid Flow
LO Description	Student will be able to explain terms related to fluid flow

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process		Pract. /Tut Hrs.	LRs Required	Remarks
1	Potential flow, velocity field, the 1 dimensional flow, velocity gradient, rate of shear, shear stress field, viscosity, kinematic viscosity, Newtonian and nonnewtonian fluid.	Method	Faculty will explain learning content. To identify students weakness assignment will be given and accordingly remedial and tutorials will be taken.	8	2	Suggested text book handouts power point	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	5	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma	Wing) Bhopal
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SCHEME FOR LEARNING OUTCOME

Branch Code		Cou	ırse C	ode	CO Code	LO Code	Format No. 4	
\boldsymbol{C}	0	2				2	2	

COURSE NAME	FLUID FLOW OPERATIONS AND MACHINERY
CO Description	Student will be able to understand fundamentals & Fluid Flow
LO Description	Student will be able to explain behaviour of flowing fluids.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Boundary layer, Boundary layer formation, separation and wake formation, Boundary layer in		Faculty will explain learning content. To identify students weakness	8	2	Related Videos Reynolds	
	straight tube, Reynolds number, Laminar flow, Transition Flow, Turbulent Flow, Transition from		assignment will be given and accordingly remedial and tutorials will be taken.			experiment setup Faculty will	
	laminar to turbulent flow.		tutoriais will be taken.			Faculty will demonstrate laminar,	
						transition and turbulent flow in lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	5	Question paper	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

		SCHEME FOI	RIFARNING	C	0	2		3	1	
COURSP W Diptoma	Wing) Bhopal FLUID FLOW OPERATION	NS AND MACHI QU TO	COME							Format No. 4
CO Description	Student will be able to	understand the basic	equations of fluid flow	•						

LO Description Student will be able to explain theory and calculate parameters of flowing fluids.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Stream lines and stream tubes, equation of continuity average and mass velocity, momentum balance, momentum correction factor.	Method	Faculty will explain learning content. To identify students weakness assignment will be given and accordingly remedial and tutorials will be taken.	8	2	Suggested text book handouts powerpoint	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	10	Test Paper + Rating Scale	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			
					C	0	2				3	2			
COURS	E NAME	FLUID FLOW OPERATION	ONS AND MACHINERY	'						'					
CO Description Student will be able to understand the basic equations of fluid flow.															
LO Des	cription	Student will be able	e to explain theory of Bern	oulli equation and	its appli	cation	n in flui	d flow	system.						
			S	CHEME OF STU	JDY										
S. No.	Learni	ng Content	Teaching –Learning Method	_	ription of T-L Process		•			each Hrs.	Pra /Tut		LRs R	equire	ed Remarks
1				Faculty will expl	will explain learning			8	2	2	Sugge	ested			
1	frication, mechanical energy		N / - 41 1	content.						text	boo	slz			
1	/	\mathcal{O}_{J}	Method										OK		
1	equation,	mechanical energy kinetic energy factor, correction in	Method	To identify stude assignment will							hando	uts	JK		

Bernoulli equation for fluid

friction, pump work in Bernoulli

equation.

accordingly remedial and

tutorials will be taken.

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RG	RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code		CO Code	LO Code	Format No. 4
					C	0	2			3	3	
COURSI	E NAME	FLUID FLOW OPERATION	ONS AND MACHINERY		'	-						
CO Description Student will be able			to understand the basic equa	ations of fluid flo	w.							
LO Des	scription	Student will be able	e to verify kinetic energy, 1	potential energy	y and pre	ssure en	ergy by	in Beri	noulli equa	tion in g	iven flow	y system.
			S	CHEME OF S	STUDY							
	o. Learning Content				ription of T-L Process							
S. No.	Learn	ing Content	Teaching –Learning Method		-	T-L		each Irs.	Pract. /Tut Hrs	LRs	Require	d Remarks
S. No.	Perform in	laboratory to verify		Faculty will e	Process xplain the	e conten	H			Exp	eriment	d Remarks
		laboratory to verify	Method	Faculty will e in lab and den	Process xplain the nonstrate	e conten how to	H		/Tut Hrs	Exp Setu	eriment p	d Remarks
S. No.	Perform in	laboratory to verify	Method	Faculty will e	Process xplain the nonstrate How thes	e conten how to	t I		/Tut Hrs	Exp Setu	eriment	d Remark

kinetic, potential and pressure

energy and verify the equation. Students will practice under the guidance of faculty.

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LI		Branch Code			rse Code	CO Code	LO Code	Format No. 4		
			$oldsymbol{C}$					4	1			
COURSE NAME FLUID FLOW OPERATIONS AND MACHINERY												
CO Description	Student will be able	Student will be able to understand flow of incompressible fluid in conduits.										
LO Description	Student will be ab	e to understand theory and	able to calculate shear	stress and	d skin fr	iction f	or Newtoni	an fluid	in pipe.			
		S	CHEME OF STUDY									
		Teaching –Learning	Description o	et t	Tr.	each	Pract.					

S. No.	Learning Content	Teaching –Learning Method			Pract. /Tut Hrs.	LRs Required	Remarks
1	Shear stress distribution in tubes, relation between skin friction and wall shear. The friction factor, relation between skin friction parameters	Method	Faculty will explain learning content. To identify students weakness assignment will be given and accordingly remedial and tutorials will be taken.	6	2	Suggested text book handouts power point	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	5	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR L OUTCOM	Branch Code			Course Code		CO Cod	e Code	Format No. 4		
					C	0	2			4	2	
COURSI	E NAME	FLUID FLOW OPERATION	ONS AND MACHINERY		'				'		'	
		Student will be able t	to understand flow of incom	pressible fluid in	conduits.							
LO Des	cription	Student will be able	e to understand theory of l	aminar flow of	Newtonia	an fluid	in pipe	•				
			S	SCHEME OF S	TUDY							
S. No.	Learnin	g Content	Teaching –Learning Method		Description of T-L Process			each Hrs.	Prac /Tut H		s Requir	ed Remarks
1		ween local velocity m velocity, average	Traditional Lecture Method	Faculty will excontent.	xplain lea	arning		8	2	Si te	iggested xt bo	ok

To identify students weakness

assignment will be given and

accordingly remedial and

tutorials will be taken.

handouts

power point

SCHEME OF ASSESSMENT

velocity, kinetic energy and momentum correction factor

equation, flow through channels

of non circular cross-section,

derivation,

friction factor chart.

Hagen-Poiseuille

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR L		de	Cour	rse Code	CO Code	LO Code	Format No. 4			
					C	0	2			4	3	
COURSI	E NAME	FLUID FLOW OPERATION	ONS AND MACHINERY			·						
CO Description Student will		Student will be able t	o understand flow of incom	pressible fluid in cor	duits.							
LO Des	cription	Student will be able	e to calculate head loss in	given fluid flow sy	stem.							
			S	CHEME OF STU	DY							
S. No.	Learnin	ng Content	Teaching –Learning Method	_	otion of T-L rocess			each Irs.	Pract. /Tut Hrs	. LRs	Require	ed Remarks
1		roughness, friction change in velocity,	Traditional Lecture Method	Faculty will explorate content.	in learn	ing		8	2	Sug text	gested boo	ok

To identify students weakness

assignment will be given and

accordingly remedial and

tutorials will be taken.

handouts

power point

sudden

direction,

system fittings and valves.

expansion, sudden contraction,

flow

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR L OUTCOM	Branch Code			Cou	rse Code	CO Code	LO Code	Format No. 4		
					C	0	2			4	4	
COURS	E NAME	ONS AND MACHINERY						'				
CO Des	cription	Student will be able	to understand flow of incom	pressible fluid in c	onduits.							
LO Des	cription	Student will be able	e to evaluate head loss in f	luid flow system.								
			S	CHEME OF ST	CUDY							
S. No.	Learni	ng Content	Teaching –Learning Method	_	cription of T-L Process			each Hrs.	Pract. /Tut Hr	II IZ C	Requir	ed Remarks
		n the system due to	Lab - demonstration	Faculty will explain the content in lab and demonstrate how to take reading. How these observation are use to calculate		.+		9	Evn	eriment		

kinetic, potential and pressure

energy and verify the equation. Students will practice under the guidance of faculty.

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	20	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LI OUTCOM		Br	anch Co	ode	Cou	rse Code	CO Code	LO Code	Format No. 4	
				C	0	2			5	1		
COURSE NAME FLUID FLOW OPERATIONS AND MACHINERY									<u>'</u>		<u>'</u>	
CO Des	cription	Student will be able t	o select fittings and machine	ery for given fluid	flow sys	stem.						
LO Des	cription	Student will be able	e to explain pipe fitting and	l valves.								
			S	CHEME OF S	ΓUDY							
S. No. Learnin		ng Content	Teaching –Learning Method	Descrip P	otion of rocess	T-L		each Hrs.	Pract. /Tut Hrs	LRs	Require	d Remarks

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Pipe and tube size, selection of	Traditional Lecture	Faculty will explain learning	10	2	models of	
	size, flow controlling valve,	Method	content.			valve and	
	Gate valve, Globe valve, Ball		To identify students weakness			pumps actual	
	valve, Butter fly valve, Check		assignment will be given and			fittings charts	
	valves, Diaphragm valve, Joints		accordingly remedial and			showing	
	and Fittings.		tutorials will be taken.			construction	
						details &	
						valve, pump	
						and fittings	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	10	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code		Code	Format No. 4
			C	0	2			5	2	
COURSE NAME	FLUID FLOW OPERATIONS AND MACHINERY									
CO Description	Student will be able to	Student will be able to select fittings and machinery for given fluid flow system.								
LO Description	Student will be able to explain construction and working of pumps.									

CO LO

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Classification of pumps	Traditional Lecture	Faculty will explain learning	12	2	Suggested	
	Construction and working of	Method	content.			text book	
	centrifugal pump.		To identify students weakness			handouts	
	Developed head, Cavitation,		assignment will be given and			power point	
	suction lift, NPSH, capacity,		accordingly remedial and			models of	
	power and speed, priming,		tutorials will be taken.			pumps actual	
	characteristics curves.					charts	
	Construction and working of					showing	
	Reciprocating Pump and Gear					construction	
	Pump. Elementary idea about,					details of	
	compressors, blowers and jet					pump.	
	ejector.						

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	15	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RG	RGPV (Diploma Wing) Bhopal		l	SCHEME FOR L OUTCOM		Bra	anch Co	ode	Course Code		Code Code		LO Code	Format No. 4
						C	0	2				5	3	
COURSE NAME FLUID FLOW OPERATIONS AND MACHINERY														
CO Des	cription	Student will be	able t	o select fittings and machin	ery for given fluid	flow syst	tem.							
LO Des	cription	Student will b	e able	e to explain metering of flu	uids in pipe and o	pen cha	annels.							
		·		S	CHEME OF ST	UDY								
S. No. Learni		ng Content		Teaching –Learning Method	Descrip Pr	tion of bocess	T-L		each Hrs.		Pract. ut Hrs.	LRs]	Require	d Remarks
1	Principal,	construction	and	Traditional Lecture	Faculty will exp	olain lea	arning		12		2	Sugg	gested	

S. No.	Learning Content	Teaching —Learning Description of T-L Method Process			Pract. /Tut Hrs.	LRs Required	Remarks
1	Principal, construction and working of venturimeter, orificemeter, rotameter and pitot tube. Classification of notches and weir Discharge over rectangular and triangular notch.		Faculty will explain learning content. To identify students weakness assignment will be given and accordingly remedial and tutorials will be taken.	12	2	Suggested text book handouts power point	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RG	RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code		Course Code		CO Code	e Code	Format No. 4	
						0	2			5	4	
COURSE NAME FLUID FLOW OPERATIONS AND MACHINERY												
CO Description Student will be able to select fittings and machinery for given fluid flow system.												
LO Des	cription	Student will be able	e to calculate discharge the	ough pipe by vo	enturi mete	er and c	orifice 1	neter ir	n a given	system.		
			S	CHEME OF S	TUDY							
S. No. Learni		ng Content	Teaching –Learning Method		Description of T-L Process			each Irs.	Prac /Tut H		s Require	ed Remarks
1	Perform in discharge co	laboratory to verify	Lab - demonstration	Faculty will exin lab and dem					10		xperiment etup	
	discharge co	ocificient.		in iao ana acii	ionstrate n	ow to				50	ιup	

of faculty.

take reading. How these

observation are use to calculate discharge coefficient. Students will practice under the guidance Lab Manual

S. No.	Method of Assessment	Method of Assessment Description of Assessment Maximum Marks		Resources Required	External / Internal
	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code		Course Code		CO Cod	de Code	Format No. 4		
					C	0	2			5	5	
COURSI	E NAME	FLUID FLOW OPERATION	ONS AND MACHINERY								'	
CO Des	cription	Student will be able t	to select fittings and machin	ery for given fluid	flow sys	tem.						
LO Des	cription	Student will be able	e to calculate discharge by	triangular and re	ctangul	ar notch	for giv	en syst	em.			
			S	CHEME OF ST	UDY							
S. No. Learning		ng Content	Teaching –Learning Method		ription of T-L Process			each Hrs.	Pract /Tut H		Rs Require	ed Remarks
1	Perform in	laboratory to verify	Lab - demonstration	Faculty will exp	olain the	conten	ıt		12	E	xperiment	

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Perform in laboratory to verify discharge coefficient.	Lab - demonstration	Faculty will explain the content in lab and demonstrate how to take reading. How these observation are use to calculate discharge coefficient. Students will practice under the guidance of faculty.		12	Experiment Setup Lab Manual	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)