RGPV (DIPLOMA

OBE CURRICULUM

FORMAT-

Sheet

	`	BHOPA		FOR THE COURSE		3 No. 1/2				
Branch			Med	chanical Engineering	S	Semester	•	VI		
Course (Code			Course Name	Inc	dustrial Au	utomatic	on		
Course	Outo	ome 1	Explain	Industrial automation, its types.			Teach Hrs	Marks		
Learnin	g Out	come 1	Explain	basic elements of automation system.			5+0	10		
Co	ontent	s		and benefits of Industrial Automation, automation automation of each element.	enefits of Industrial Automation, automation hierarchy, basic elements system, description of each element.					
	ethod o		paper	pen test (Part of Progressive Test -1)						
Learnin	g Out	come 2	Explain	types of industrial automation.			5+2	10		
Types of automation - fixed, programmable, flexible, Principles & strategeneration automation, levels of automations. Classification of Manufacturing Symmetry Manufacturing cells, GT, Cellular manufacturing, FMS, Flow lines & timechanisms.							Systems-			
_	ethod o	_	Theor	y exam (Part of end semester exam)						
Course	NITCO I DICOME / Describe construction working of Hydraulic actuation system						Teach Hrs	Marks		
Learnin	g Out	come 1	compo				5+3	10		
Co	ontent	s	filter, accumi cylinde	lic Actuation Systems: Hydraulic fluid, F Line fitting and seals; Hydraulic pun ulator, Gas charged accumulator. Cylinder- r. Hydraulic Valves:- Directional control val lic flow control valve	nps Single	Accumulatore acting cyling	rs- Spring nder, Dou	g loaded ble acting		
Me	ethod o	of		y exam (Part of end semester exam)						
Ass	essme	nt					T			
Learnin	g Out	come 2	Explain	construction, working of Hydraulic Pumps.	Ī		7+0	10		
	ontent		plate d	lic Pumps- Gear pump, vane pump, piston esign inline piston pumps.	n pun	np, radial pi	iston pun	np, swash		
	ethod o essme		Theor	y exam (Part of end semester exam)						
Learnin			system		draulio	actuation	0+9	10		
Co	ontent	 S	Hydrau	lic circuit diagram.						
	ethod o		Labora	atory test by observation (Part of end	vation (Part of end semester practical exam)					
Ass	essme	nt						46		
Learnin	g Out	come 4		y problems, their causes and possible ren Hydraulic Actuation system.	nedies 	of a given	3+2	10		
Co	ontent	s	Faults, actuati	there identification and troubleshooti on system. Selection criteria for Hydraulio ation and maintenance of hydraulic actuati	cactua	ation system		•		

Assessment	paper pen test (Part of Progressive Test -2)		
Course Outcome 3	Describe construction, working of Pneumatic Actuation System.	Teach Hrs	Marks
Learning Outcome 1	Explain construction, working of Pneumatic actuation system components.	4+0	10
Contents	Actuator- liner, Rotary, Limited angle; Compressor, Reservoir; Valv number of plug and flow characteristic; piping system. Filter-regula dryer		
Method of Assessment	Assignment(Part of term work)		
Learning Outcome 2	Explain construction, working of Compressors.	6+2	10
Contents	Compressor- piston compressor, Double acting compressor, Multist stage compressor, Diaphragm compressor, Screw compressor compressor, Lobe compressor, Dynamic compressor	-	oined two ary vane
Method of Assessment	Theory exam (Part of end semester exam)		
Learning Outcome 3	Draw Pneumatic circuit diagram of a given Pneumatic Actuation Systems.	0+6	10
Contents	Pneumatic circuit diagram.		<u> </u>
Method of Assessment	Laboratory test by observation and Viva (part of lab work)		
Learning Outcome 4	Identify problems, their causes and possible remedies of a given	0+6	10
	faulty Pneumatic Actuation Systems.		
Contents	Faults, there identification and troubleshooting/remedent Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneumatic act selection.	uation s	systems.
Contents Method of Assessment	Faults, there identification and troubleshooting/remedent Pneumatic system. Selection criteria for Pneumatic act	tuation s imatic a	systems. ctuation
Method of	Faults, there identification and troubleshooting/remedent Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems.	tuation s imatic a	systems. ctuation
Method of Assessment	Faults, there identification and troubleshooting/remedent Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems. Laboratory test by observation (Part of end semester practic	tuation sumatic a al exam)	systems. ctuation
Method of Assessment Course Outcome 4	Faults, there identification and troubleshooting/remed Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems. Laboratory test by observation (Part of end semester practic Explain construction, working of Sensors, Transducers	Teach Hrs 6+0 n , classrange, spend reproce	Marks 10 sification an, error, ducibility,
Method of Assessment Course Outcome 4 Learning Outcome 1	Faults, there identification and troubleshooting/remed Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems. Laboratory test by observation (Part of end semester practic Explain construction, working of Sensors, Transducers Explain terms related to Sensors, Transducers. Sensor- Definition , classification, Transducer- Definition Performance Terminology, Static and Dynamic Characteristics, accuracy, sensitivity , Linearity, non- linearity repeatability ar stability, dead band/ time, resolution, zero drift, output impuden	Teach Hrs 6+0 n , classrange, spend reproce	Marks 10 sification an, error, ducibility,
Method of Assessment Course Outcome 4 Learning Outcome 1 Contents Method of	Faults, there identification and troubleshooting/remed Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems. Laboratory test by observation (Part of end semester practic Explain construction, working of Sensors, Transducers Explain terms related to Sensors, Transducers. Sensor- Definition , classification, Transducer- Definition Performance Terminology, Static and Dynamic Characteristics, accuracy, sensitivity , Linearity, non- linearity repeatability ar stability, dead band/ time, resolution, zero drift, output impudentime constant.	Teach Hrs 6+0 n , classrange, spend reproce	Marks 10 sification an, error, ducibility,
Method of Assessment Course Outcome 4 Learning Outcome 1 Contents Method of Assessment	Faults, there identification and troubleshooting/remed Pneumatic system. Selection criteria for Pneumatic act Safety measures in operation and maintenance of pneusystems. Laboratory test by observation (Part of end semester practic Explain construction, working of Sensors, Transducers Explain terms related to Sensors, Transducers. Sensor- Definition , classification, Transducer- Definition Performance Terminology, Static and Dynamic Characteristics, accuracy, sensitivity , Linearity, non- linearity repeatability ar stability, dead band/ time, resolution, zero drift, output impudentime constant. Theory exam (Part of end semester exam)	Teach Hrs 6+0 n , class range, spend reproduce, responderers, Pneu- III, Thermo	Marks 10 sification an, error, ducibility, use time, and the state of the state o

Assessment			
Course Outcome 5	Describe construction, working of PLC.	Teach Hrs	Marks
Learning Outcome 1	Explain Logic Operations in electro- mechanical applications, construction of PLC.	6+2	10
Contents	Simple Logic Operations: Logic circuits with AND, OR, XOR operations, Series and Parallel logic circuits. Componer of a PLC, Power supply module, Input module, Output module, CPU		
Method of	Theory exam (Part of end semester exam)		
Assessment			
Learning Outcome 2	Draw wiring diagram of a given PLC setup.	0+6	10
Contents	Setting up PLC, Hands on wiring of input devices to input r	nodules,	Hands on
	wiring of output devices to output module, Instructions to examine OFF	examine	e ON and
Method of	Laboratory test by observation and Viva (part of lab work)		
Assessment			
Learning Outcome 3	Write a ladder logic programme for PLCs.	0+12	10
Contents	COMPUTER BASED INDUSTRIAL CONTROL Understanding Ladder Diagrams: Programming contacts, Addressing diagrams, Ladder diagrams, Ladder diagram rules. Programming a L Use of programming software for ladder diagram programming, P solve logic problems. case studies- pick and place robot, conveyor b Tank level.	adder Di	agram: ams to
Method of	Laboratory test by observation (Part of end semester practic	al exam)	
Assessment			

^{*}elective Industrial Automation

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING			Course Code			CO Code	LO Code	Format No. 4	
		OUTCOME		0	2				1	1	
COURSE NAME	Industrial Automatic	ndustrial Automation									
CO Description	Explain Industrial automat	Explain Industrial automation, its types.									
LO Description	Explain basic elements of automation system.										
SCHEME OF STUDY											

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Need and benefits of Industrial Automation, automation hierarchy, basic elements of automation system, description of each element.	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.	5	NIL	Handouts, chalk board, PPT, text book, charts, video film.	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test	Student will be asked to describe automation system / elements.	10	Test paper + Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Progressive Test-1

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code		LO Code	Format No. 4
				0	2			1	2	
COURSE NAME	Industrial Automatio	lustrial Automation								
CO Description	Explain Industrial automat	ion, its types.								
LO Description	Explain types of industri	Explain types of industrial automation.								
SCHEME OF STUDY										

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Types of automation - fixed, programmable, flexible, Principles & strategies of automation, levels of automations. Classification of Manufacturing Systems-Manufacturing cells, GT, Cellular manufacturing, FMS, Flow lines & transfer mechanisms.	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.	5	2	Handouts, chalk board, PPT, text book, charts, video film.	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain types of automation/Automation levels/ types of automated manufacturing system.	10	Question paper+ Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		anch (Code	Course Code		CO Code	LO Code	Format No. 4	
				0	2			2	1		
COURSE NAME	Industrial Automatic	lustrial Automation									
CO Description	Describe construction, wo	rking of Hydraulic actuation system									
LO Description	O Description Explain construction, working of Hydraulic actuation system components.										
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 Actuation Systems: Hydraulic fluid, Fluid delivery sub system- Reservoir, filter, Line fitting and seals; Hydraulic pumps. Accumulators- Spring loaded accumulator, Gas charged accumulator. Cylinder- Single acting cylinder, Double acting cylinder. Hydraulic Valves:- Directional control valve, Hydraulic pressure control valve, Hydraulic flow control valve	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.	5	3	Handouts, chalk board, PPT, text book, charts, video film.	

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 of hydraulic actuation system components.	10	Question paper+ Rating scale	External

${\bf ADDITIONAL\ INSTRUCTIONS\ FOR\ THE\ HOD/\ FACULTY\ (IF\ ANY)}$

RG	·PV (Dinla	oma Wing) Bhopal		R LEARNING	Bı	ranch C	ode	Co	ourse C	ode	CO Code	LO Code	Format No. 4	
NO	I V (Dipi	oma vving / Diiopai	OUTO	COME	M	0	2				2	2	1 0111141 110. 4	
COURS	SE NAME	Industrial Automa	ation		'								<u>'</u>	
CO Des	cription	Describe construction,	working of Hydraulic ac	ctuation system										
LO Des	cription	Explain construction,	working of Hydraulic Pu	umps										
				SCHEME O	F STU	DY								
S. No. Learning Content		Teaching – Learning Method	Description of T-L Process		Teach Hrs.		ract. it Hrs.	L	Rs Re	quired		Remarks		
1	Hydraulic Pumps- Gear pump, vane pump, piston pump, radial piston pump, swash plate design inline piston pumps.		ne 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.		o will hts/ ke		NIL		IL Handouts, chalk board, PPT, text book, charts, video film.				
	ı			SCHEME OF A	SSESS	MENT								
S. No.	Meth	od of Assessment	Description of A	Assessment		kimum arks]	Resour	ces Red	quired		External / Internal	
1		Гheory exam	Student will be asked to explain construction/ working of hydraulic pumps		10			Question paper+ Rating scale				e	External	
			ADDITIONAL INST	TRUCTIONS FO	R THE	HOD/	FACU	LTY (1	FANY	7)				
				Part of end semes	ter theo	ry exam								

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code		CO Code	LO Code	Format No. 4
				0	2				2	3	
COURSE NAME	Industrial Automatic	Industrial Automation									
CO Description	Describe construction, wo	rking of Hydraulic actuation system.									
LO Description Draw Hydraulic circuit diagram of a given Hydraulic actuation system.											
SCHEME OF STUDY											

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 circuit diagram.	Lab demonstratio n, hands on practice, lab assignments, quiz assignments	Teacher will explain and demonstrate the learning content. The student learn through the practice.	NIL	9	Handouts, chalk board, PPT, text book, charts, video film, and lab manual. Hydraulic circuit trainer kit	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory test by observation	a.) draw hydraulic circuit diagram b.) identify components, their placement/ alternative components and their placements for a given hydraulic actuation system	10	Observation schedule/charts/check-list /rating scales /rubrics.	External

${\bf ADDITIONAL\ INSTRUCTIONS\ FOR\ THE\ HOD/\ FACULTY\ (IF\ ANY)}$

Part of end semester practical exam

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARING		Branch Code		Со	Course Code		CO Code	LO Code	Format No. 4
		OUTCOME	M	0	2					4	
COURSE NAME	Industrial Automatio	ndustrial Automation									
CO Description	Describe construction, wo	king of Hydraulic actuation system									
LO Description	LO Description Identify problems, their causes and possible remedies of a given faulty Hydraulic Actuation system.										
SCHEME OF STUDY											

S. No.	Learning Content	Teaching -Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Faults, there identification and	Interactive	Teacher will	3	2	Handouts, chalk board,	
	troubleshooting/remedial measures in	classroom	explain the			PPT, text book, charts,	
	hydraulic actuation system. Selection	teaching,	contents and			video film.	
	criteria for Hydraulic actuation systems,	demonstrat	provide handouts to				
	Safety measures in operation and	ion, quiz,	students. Teacher				
	maintenance of hydraulic actuation systems	assignment	will conduct				
		s,	assignments/				
		tutorial	quiz/tutorial to				
			make students				
			practice their				
			knowledge.				

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Pen paper test	Student will be asked to list probable faults and its remedial measures / trouble shooting procedures in hydraulic actuation systems.	10	Test paper + Rating scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of progressive test -2

I	RGPV (Dink	oma Wing) Bhopal	SCH	IEME FOR L		Bra	nch Co	de Co	ourse Code	CO Code	LO Code	Format No. 4
•	XOI V (DIPI	oma wing biopar		OUTCOM	IE	M	0	2		3	1	1 01111at 140. 4
_	OURSE NAME	Industrial Auton	nation									
COI	Description	Describe construction	n, working of I	Pneumatic Actua	tion System.							
LOI	Description	Explain construction	, working of Pr	neumatic actuation	on system com	onents.						
					SCHEME O	F STUI	ΟY					
S. No.		Learning Content		Teaching – Learning Method	Description Proce		Teach Hrs.	Pract. /Tut Hrs.	LRs Re	quired		Remarks
ı	number of 1	liner, Rotary, Li , Reservoir; Valve- ba plug and flow charact er-regulator-lubricator(sed on action, eristic; piping	classroom	Teacher will explain the contents and provide hand students. Te will conduct assignments quiz/tutorial make student practice their knowledge.	l douts to acher / to	4	NIL	Handouts, c PPT, text be video film.		´	
				SC	HEME OF A	SSESSI	MENT					
S. No.	Metho	d of Assessment	Desci	ription of Asses	ssment Maxim				Resources Re	quired		External / Internal
1	Assignment Student will be asked construction/ working actuation system con			on/ working of I	Pneumatic 10		Question paper+ Rating scale			le	Internal	
			ADDITIO	NAL INSTRU	CTIONS FO Part of ter		HOD/ F	ACULTY (IF ANY)			

RGPV (Diple	oma Wing) Bhopal	SCHEME FOR LEARNING	Bı	Branch Code			Course Code		LO Code	Format No. 4
` .		OUTCOME		0	2			3	2	
COURSE NAME	Industrial Automatic	industrial Automation								
CO Description	Describe construction, wo	rking of Pneumatic Actuation System.								
LO Description Explain construction, working of Compressors.										
SCHEME OF STUDY										

SCHEME	OF	ST	UD	Y

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Compressor- piston compressor, Double acting compressor, Multistage combined two stage compressor, Diaphragm compressor, Screw compressor, Rotary vane compressor, Lobe compressor, Dynamic compressor	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.	6	2	Handouts, chalk board, PPT, text book, charts, video film.	

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 of given Compressors.	10	Question paper+ Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RG	RGPV (Diploma Wing) Bhopal			OR LEARNING	Bı	anch C	ode	Co	ourse Co	de	CO Code	LO Code	Format No. 4
		8, I	OUI	COME	M	0	2				3	3	
COURS	E NAME	Industrial Auto	mation					'					
CO Des	cription	Describe constructi	on, working of Pneumatic	Actuation System.									
LO Des	cription	Draw Pneumatic cir	rcuit diagram of Pneumati	c Actuation Systems.									
		1		SCHEME O	F STU	DY							
S. No.	No. Learning Content Teaching —Learning Description of T-L Process Hrs.							Pract. ut Hrs.	L	Rs Red	quired		Remarks
1	Pneumatic circuit diagram. Lab demonstration, hands on practice, lab assignments, quiz assignments Teacher will exp and demonstrate learning content. The student learn through the practice.		e the	NIL		6 Handouts, cha PPT, text book video film and Pneumatic circ trainer kit			ok, charts nd	*	1		
				SCHEME OF A	SSESS	MENT							
S. No.	Metho	od of Assessment	Description of	Assessment		kimum arks			Resourc	es Red	quired		External / Internal
1		ooratory test by rvation and Viva	Student will be aske a.) draw pneum diagram b.) identify com placement/ a components placements f pneumatic ac	atic circuit ponents, their lternative and their		10		servatio lles /rubi		ile/che	ck-list /ra	ating	Internal
	1		ADDITIONAL INS	•	R THE	HOD/ 1	FA <i>C</i> I	JLTY (IF ANY)			1
				Part of La			ACC		H AITI	,			

RG	PV (Diplo	ma Wing) Bhopal	SCHEME FOR I		Bra	nch C	ode	Cour	se Code	CO Code	LO Code	Format No. 4	
	` •	3 / 1	OUTCO	ME	M	0	2			3	4		
COURS	E NAME	Industrial Automa	tion		<u> </u>				·				
CO Des	cription	Describe construction,	working of Pneumatic Actu	ation Systems.									
LO Desc	cription	Identify problems, their	causes and possible remed	lies of a given f	aulty Pn	eumatic	Acti	uation System	l .				
				SCHEME O	F STUI	ΟY							
S. No.	Lea	rning Content	Teaching –Learning Method	Description Proce		Tea H	ach rs.	Pract. /Tut Hrs.	LRs	Required		Remarks	
1	Faults, there identification and troubleshooting/remedial measure in Pneumatic system. Selection criteria for Pneumatic actuation systems. Safety measures in operation and maintenance of pneumatic actuation systems.		Lab demonstration, hands on practice, lab assignments, quiz assignments	Teacher will eand demonstrest learning content of the student learning through the property of the student learning through th	ate the ent.	NII	L	06	Handouts, chalk board, PPT, text book, charts, video film, and laboratory manual.				
			S	CHEME OF A	SSESSI	MENT	1						
S. No.	Metho	od of Assessment	Description of Ass	essment		mum rks		Re	sources Re	quired		External / Internal	
1		oratory test by vation and Viva	Student will be asked to faults and its remedial trouble shooting properties of pneumatic actuation	measures / cedures in	1	0	Observation schedule/charts/check-list /rating scales /rubrics		-list	External			
			ADDITIONAL INSTRU	UCTIONS FO	R THE	HOD/	FA(CULTY (IF	ANY)				

Part of end semester Practical exam

RG	PV (Diplor	ma Wing) Bhopal	SCHEME FOR I		Br	anch (Code	Cou	rse Code	CO Code	LO Code	Format No. 4
	` 1	<i>8</i> / 1	OUTCO	M	0	2			4	1		
COURS	E NAME	Industrial Automa	tion					<u> </u>		'	·	
CO Des	cription	Explain construction,	working of Sensors, Transc	lucers								
LO Des	cription	Explain terms related to	o Sensors, Transducers.									
	_			SCHEME O	F STU	DΥ						
S. No.	Lea	rning Content	Teaching –Learning Method	Description Proces			ach rs.	Pract. /Tut Hrs.	LRs	Required		Remarks
1	Definition Performar Static and Characterierror, acc Linearity, repeatabiling reproducible band/ time drift, outp	ion, Transducer- , classification nce Terminology, Dynamic istics, range, span, nuracy, sensitivity, non-linearity	Interactive classroom teaching, demonstration, quiz, assignments, Tutorial. Teacher will of the contents a provide handed students. Teacher will of the contents a provide handed students a provide handed students. Teacher will of the contents a provide handed students a		explain 6 and outs to acher will gnments/ to make			NIL	Handouts, chalk board, PPT, text book, charts, video film.			
	I		SO	CHEME OF A	SSESS	MENT						
S. No.	Metho	d of Assessment	Description of Ass	essment		imum irks		R	esources R	equired		External / Internal
1	T	heory exam	Student will be asked to terms related to Sensors.	1 0	-	0		Quest	ion paper+	Rating sca	le	External
			ADDITIONAL INSTRU	UCTIONS FO	R THE	HOD/	FAC	CULTY (IF	ANY)			
			Pa	rt of end semes	er theo	ry exar	n					

RG	PV (Diplo	oma Wing) Bhopal	SCHEME FOI		Br	Branch Code			ırse Code	CO Code	LO Code	Format No. 4
	- · (F	····································	OUTC	OUTCOME M		0	2			4	2	
	JRSE ME	Industrial Autor	nation		'		'		'			-
CO Description Explain construction, working of Sensors, Transducers												
LO Des	cription	Explain construction	n, working of Sensors, trans	ducers.								
		'		SCHEME OF	STU	DY						
S. No.	Lear	Teaching I earning Description of T.I. Teach Pract									Remarks	
1			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	NIL		Handouts, cl PPT, text bo video film.		·	
		·		SCHEME OF AS	SESS	MENT	·					
S. No.	Meth	od of Assessment	Description of	f Assessment	N	Iaximun Marks	n	I	Resources Re	equired		External / Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

10

Question paper+ Rating scale

External

Student will be asked to explain construction/ working of given Sensors

/transducers

Theory exam

1

RG	PV (Diplo	oma Wing) Bhopal		FOR LEARNING	Br	anch Co	ode	Co	urse C	ode	CO Code	LO Code	de Format No. 4
Ro	i v (Dipio	mu ((mg) bhopui	OU	OUTCOME			2				5	1	1 office 1 to. 1
COURS	E NAME	Industrial Autor	nation		'						'		<u>'</u>
CO Des	cription	Describe constructio	on, working of PLC.										
LO Des	cription	Explain Logic Opera	ations in electro- mecha	nical applications, con	struction	of PLC.							
				SCHEME C	F STU	DY							
S. No. Learning Content Teaching –Learning Descripti Method Pro					f T-L	Teach Hrs.		ract. t Hrs.	I	Rs Re	quired		Remarks
1	Simple Logic Operations: Logic circuits with AND, OR, XOR operations in electro- mechanical applications, Series and Parallel logic circuits. Components of a PLC: Chassis of a PLC, Power supply module, Input module, Output module, CPU		Interactive classroom teaching, demonstration, quiz, assignments, tutorial	the contents and	ts to er will nents/ make	6	2		· · · · · · · · · · · · · · · · · · ·		Iandouts, chalk board, PPT, text book, charts, ideo film.		
				SCHEME OF A	SSESS	MENT							
S. No.	Metho	od of Assessment	Description	of Assessment		kimum arks]	Resour	ces Re	quired		External / Internal
1	7	Theory exam	Student will be ask given logic Operation mechanical application by Construction of a	ons in electro-		10		Ques	stion pa	iper+ R	ating scal	e	External
			ADDITIONAL IN	STRUCTIONS FO	R THE	HOD/	FACU	LTY (1	F ANY	7)			
				Part of end semes	ter theo	ry exam							

P.C.	PV (Diplo	ma Wing) Bhopal		FOR LEARNING	Br	anch C	ode	Co	urse C	ode	CO Code	LO Code	Format No. 4
KG	ı v (Dipio	ma wing / bilopai	0)	OUTCOME		0	2				5	2	Tormat No. 4
COURS	E NAME	Industrial Autor	mation			1						1	
CO Des	cription	Describe construction	on, working of PLC.										
LO Des	cription	Draw wiring diagram	m of a given PLC setup).									
				SCHEME O	F STU	DY							
S. No.	Lear	ming Content	Teaching –Learni Method	ng Description of Process	T-L	Teach Hrs.		ract. it Hrs.	L	Rs Re	quired		Remarks
1	Setting up PLC, Hands on wiring of input devices to input modules, Hands on wiring of output devices to output module, Instructions to examine ON and examine OFF		Lab demonstration, hands on practice, l assignments, quiz assignments		e the n	NIL	6		Handouts, chalk board, PPT, text book, charts, video film, Laboratory manual, PLC/connection wires and input output devices		s, y		
				SCHEME OF A	SSESS	MENT							
S. No.	Metho	od of Assessment	Description	of Assessment		ximum arks]	Resour	ces Re	quired		External / Internal
1		ooratory test by vation and Viva	Student will be as diagram of a give	ked to draw wiring n PLC setup.		10		servation ing scal			rts/check-	-list	Internal
	1		ADDITIONAL I	NSTRUCTIONS FO	R THE	HOD/	FACU	LTY (F ANY	7)			1
				Part of La	b work	-							

RG	PV (Diplo	oma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME			Branch Code			rse Code	CO Code	LO Code	
	_		OUICO	IVIE.	M	0	2			5	3	
COURS	SE NAME	Industrial Automa	tion									
CO Des	cription	Describe construction,	working of PLC.									
LO Des	cription	Write ladder logic prog	grammes for PLCs.									
		'		SCHEME O	F STU	ΟY						
S. No.	Method			Description of Process		Tea Hrs		Pract. /Tut Hrs.	LRs	Required		Remarks
1	INDUST: Understar Programn addressing diagrams, Ladder di Programn Use of pro for ladder PLC prog	rer Based RIAL CONTROL ading Ladder Diagrams: ning contacts, g contacts, Wiring Ladder diagrams, agram rules. ning Ladder Diagram: ogramming software diagram programming, rams to solve logic Case studies.	Lab demonstration, hands on practice, lab assignments, quiz assignments	ation, Teacher will extice, lab and demonstration		xplain NIL te the nt. arns		12	charts, vi	PT, text bodeo film, y manual, or softwar logic		
			SO	CHEME OF AS	SSESS	MENT						
S. No.	Meth	od of Assessment	Description of As	sessment		dimum arks		Re	esources Re	quired		External / Internal
1		poratory test by rvation and Viva	Student will be asked to logic programme for a give			10		bservation s ating scales	schedule/ch /rubrics.	arts/check	-list	External
	1		ADDITIONAL INSTRU	UCTIONS FOR	THE	HOD/	FAC	ULTY (IF	ANY)			1
				of end semester				<u> </u>	·			

LIST OF EXPERIMENTS

S. NO.	NAME OF EXPERIMENTS
1	Draw a hydraulic circuit diagram of a given hydraulic actuation system.
2	Identify components, their placement/ alternative components and their placements for a given hydraulic actuation system.
3	Draw a pneumatic circuit diagram of a given pneumatic actuation system.
4	Identify components, their placement/ alternative components and their placements for a given pneumatic actuation system.
5	List probable faults and its remedial measures for a given faulty pneumatic actuation system.
7	Write the trouble shooting procedures in pneumatic actuation systems.
8	Construct and actuate pneumatic circuit for logic operations (AND/OR)
9	Draw wiring diagram of a given PLC setup.
10	Write a ladder logic programme for a given PLC setup.