DCD\/	/Diplos	na Wing) Bhopal	SCF	IEME FOR LEAR	NING	Bra	nch C	ode	Co		ode	CO Code	LO Code	
KGPV	(Dibioli	ia wilig j bilopai		OUTCOME		O	0	4				1	1	Format No.
Course	Name			IN	TERNE	Γ OF	THI	NGS	•	•				
CO Des	cription	Interpret the vision of	IoT fro	m a global context.										
LO Des	cription	Define basic concepts of	Internet	of Things.										
				SCHEME	OF STU	DY								
S. No.	Learning	Content		Teaching – Learning Method	Descript Process	ion o	f T-L	Tea Hrs	_		-	LRs R	equired	Remarks
1		ntroduction to Internet of Things-Definition and Characteristics of IoT, Applications of IoT, Limit of IoT, Challenges to import.	tations	Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to		7		0	Hande Books Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	of Assessment	Descrip	tion of Assessment		ximui 1arks	n		Reso	urces	Requi	ired	Exte	ernal / Internal
1	END SE	CM THEORY EXAM	concept	will be asked basic s and definitions of its application with ons.		10			Test Paper					External
	•	ADDI	TIONAL	INSTRUCTIONS F	OR THE	HOD	/ FA	CULT	Y (IF	ANY)		•	

PCD\	/ (Diplo	ma Wing) Bhopal	SCHEME FOR LEAF	RNING	Bra	nch C	ode	Со		de	CO Code	LO Code	Farmed Na.
NOF	v (Dipio	ilia wilig / bilopai	OUTCOME		С	0	4				1	2	Format No. 4
Course	Name		I	NTERNE	T OF	THI	NGS						
CO Des	cription	Interpret the vision of	IoT from a global context.										
LO Des	cription	Classify various devic	es used in IoT.										
			SCHEMI	E OF STU	IDY								
S. No.	Learning	g Content	Teaching – Learning Method	Descrip		f T-L	Teac Hrs.	h		-	LRs Re	equired	Remarks
1	of Io	sors, Actuators, Physical oT – IoT Protocols, IoT munication models, IoT nmunication APIs.	Design Traditional Lecture method + Handout	Teacher explain content provide student	the s and hando	out to	7		0		Hando Books Conte	s / E-	Teacher may use working animation for Searching techniques
			SCHEME O	F ASSESS	MEN	T							
S. No.	Method	of Assessment	Description of Assessment		aximu Marks		R	esou	urces Re	equir	ed	Ext	ernal / Interna
1	END SE	EM THEORY EXAM	Student will be asked to explain various devices used in IoT and IoT protocol model.	d	10			Test Paper					External
		ADDI	TIONAL INSTRUCTIONS	FOR THE	HOD	/ FA	CULTY	(IF	ANY)		_	_	

Interpret the vision of Compare different techniques		n a global context.		C 0	4 IGS			1	3	Format No. 4
Compare different tec		n a global context.		Γ OF THIN	IGS					
Compare different tec		s used in IoT.	OF STU							
	hnologie		OF STU							
ng Content		SCHEME	OF STU							
g Content			OF 310	DY						
		Teaching – Learning Method	Descrip Process	tion of T-L	Teach Hrs.	Prac Tut.	•	LRs Ro	equired	Remarks
Systems, IoT Levels and Templates. Domain Specific IoTs – H City, Environment, Energy	s, ded	Traditional Lecture method + Handout	provide	the s and handout to	7)	Hando Books Conte	s / E-	NIL
		SCHEME OF	ASSESS	MENT						
d of Assessment	Descript	tion of Assessment			Reso	urces F	Requi	red	Exte	rnal / Internal
WORK THEORY -I	compare	e or differentiate		10	Tes	st Pape	er/Qu	iiz		Internal
	Cloud Computing, Embed Systems, IoT Levels and Templates. Domain Specific IoTs – H City, Environment, Energy Agriculture and Industry.	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. d of Assessment Descript Student compare technology	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF d of Assessment Description of Assessment Student will be asked to compare or differentiate technologies used in IoT.	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESS d of Assessment Description of Assessment Student will be asked to compare or differentiate technologies used in IoT.	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT d of Assessment Description of Assessment Student will be asked to compare or differentiate technologies used in IoT. Contents and provide handout to students. Maximum Marks 10	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT Description of Assessment Maximum Marks Student will be asked to compare or differentiate technologies used in IoT. Contents and provide handout to students. Reso	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT Description of Assessment Student will be asked to compare or differentiate technologies used in IoT. Contents and provide handout to students. Students. Resources I Maximum Marks	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT Maximum Marks Student will be asked to compare or differentiate Test Paper/Que Test Paper/Que	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT d of Assessment Description of Assessment Maximum Marks Student will be asked to compare or differentiate technologies used in IoT. Test Paper/Quiz	Cloud Computing, Embedded Systems, IoT Levels and Templates. Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry. SCHEME OF ASSESSMENT d of Assessment Description of Assessment Student will be asked to compare or differentiate technologies used in IoT. Contents Contents Contents Resources Required Extermal Test Paper/Quiz

RGPV	(Dinlon	na Wing) Bhopal	SCH	HEME FOR LEAR	NING	Bra	inch C	ode	Cours	e Code	CO Code	LO Code	Format No.
itoi v	(Dipion	na wing / bilopai		OUTCOME		С	0	4			2	4	Format No.
Course	Name		1	IN	TERNE	т оғ	THIN	NGS	1		1		
CO Des	cription	Illustrate the applicat	ion of Io	T in various Domai	ns.								
LO Des	cription	Explain uses of IoT w	ithin a h	ome and city.									
				SCHEME	OF STU	DY							
S. No.	Learning	g Content		Teaching – Learning Method	Descrip Process		f T-L	Teac Hrs.		ract./ ut. Hrs	LRs R	equired	Remarks
1	1: i: g • (Home automation- Smart ighting, smart appliances ntrusion detection, smok gas detectors; Cities- Smart Parking, Snighting, Smart Roads, St. Health Monitoring, surve Emergency Response.	e for nart ructural	Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to	7		0	Hand Book Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т						
S. No.	Method	of Assessment	Descrip	otion of Assessment		ximuı Aarks	m	R	esourc	es Requ	ired	Ext	ernal / Interna
1	END SE	EM THEORY EXAM	write ap	t will be asked to opplications of IoT in nd city.		10			Test	Paper			External
		ADD	TIONAI	L INSTRUCTIONS F	OR THE	HOD	/ FA	CULTY	(IF AI	1Y)			

DCD)	//Diploy	ma Wing \ Phonal	SCHEME FOR LEAR	NING	Bra	anch C	ode	Со	urse C	ode	CO Code	LO Code	
KGP	יסוקוט) א	ma Wing) Bhopal	OUTCOME		С	0	4				2	5	Format No.
Course	Name		IN	TERNE	ΓOF	THI	NGS						
CO Des	cription	Illustrate the applicat	ion of IoT in various Domain	ns.									
LO Des	cription	Outline IoT application	ons in field of environment a	nd life sty	yle.								
			SCHEME	OF STU	DY								
S. No.	Learning	Content	Teaching – Learning Method	Descript Process		of T-L	Tead Hrs.		Prac Tut.	-	LRs R	equired	Remarks
1	air polludeted Energinver payn Heal	ronment- Weather monitoring noise of the continuous monitoring, forest faction, river flood's detection, river flood's detection, river flood's renewal gy systems, prognostics; ntory management, smartnents, smart vending match and Life Style-Health ass monitoring, Wearable	Lecture ire method + ion; Handout ble Retail- t chines; and	Teacher explain contents provide students	the and hando	out to	7	7		0	Hande Books Conte	s / E-	NIL
			SCHEME OF	ASSESS	MEN	IT							
S. No.	Method	of Assessment	Description of Assessment	_	ximu ⁄larks		F	Reso	urces	Requi	ired	Exte	rnal / Interna
1	END SE	M THEORY EXAM	Student will be asked to write applications of IoT for		10			7	Γest P	aner			External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

environment and life style

improvements.

10

Test Paper

External

END SEM THEORY EXAM

1

RGPV	(Diplon	na Wing) Bhopal	SCF	IEME FOR LEAR	NING	Bra	anch C	ode 4	Co	Pract./ Tut. Hrs	ode	CO Code	LO Code	Format No.
Course	Name				TERNE			-				2	0	
CO Des	cription	Illustrate the applicat	ion of Io	T in various Domaii	ns.									
LO Des	cription	Summarize of IoT for	industr	y automation.										
				SCHEME	OF STU	DY								
S. No.	Learning	Content		Teaching – Learning Method	Descrip ^o Process		f T-L	Tea Hrs.			-	LRs R	equired	Remarks
1	sche Ship vehi • Agri Gree • Indu prog	stics- Route generation a duling, Fleet tracking, ment monitoring, Remo- cle diagnostics; culture- Smart Irrigation en house control; stry- Machine diagnosis mosis, indoor air Quality itoring.	te , and	Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to		7		0	Hande Books Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	of Assessment	Descrip	tion of Assessment	_	ximu ⁄larks			Reso	urces	Requ	ired	Exte	rnal / Internal
1	LAB W	ORK-1		will be asked to oplications of IoT for es.		10			Assi	ssignment/ Quiz				Internal
		ADDI	TIONAL	. INSTRUCTIONS F	OR THE	HOD	/ E / A	CULT	V (IE	A NIV	1			

PGD\/	/ (Diplo	ma Wing) Bhopal	SCI	HEME FOR LEAR	NING	Bra	nch C	ode	Cours	e Code	CO Code	LO Code	Samuel Na
NGFV	(Dipio	ilia wilig <i>j</i> bilopai		OUTCOME		С	0	4			3	7	Format No. 4
Course	Name		1	IN	TERNE	T OF	THIN	IGS	,	1	•		
CO Desc	cription	Relate the differences	and sim	nilarities between Io	Γ and M	2M.							
LO Desc	cription	Explain machine to m	achine o	communication.									
		,		SCHEME	OF STU	DY							
S. No.	Learning	g Content		Teaching – Learning Method	Descrip Process		f T-L	Teach Hrs.		ract./ ut. Hrs	LRs R	equired	Remarks
1	c	ntroduction IoT and M2N communication, Difference between IoT and M2M.		Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to	7		0	Hand Book Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т						
S. No.	Method	of Assessment	Descrip	otion of Assessment	_	aximu Marks	m	Re	sourc	es Requ	iired	Ext	ernal / Internal
1	END SE	EM THEORY EXAM	compar	t will be asked to re IoT M2M mication.		10			Test	Paper	,		External
		ADDI	TIONA	L INSTRUCTIONS F	OR THE	HOD	/ FA	CULTY	(IF AI	IY)			

CO Description Relate the differences and similarities between IoT and M2M. LO Description Draw networking architecture for IoT. SCHEME OF STUDY S. No. Learning Content Teaching - Learning Method Process Hrs. Tut. Hrs 1 • Software defined networking, network function virtualization, difference between SDN and NFV for IoT Handout Provide handout to students. SCHEME OF ASSESSMENT S. No. Method of Assessment Description of Assessment Maximum Resources Required	Format No. 4
CO Description Relate the differences and similarities between IoT and M2M. CO Description Draw networking architecture for IoT. SCHEME OF STUDY S. No. Learning Content Teaching - Learning Method Process Hrs. Tut. Hrs 1 • Software defined networking, network function virtualization, difference between SDN and NFV for IoT Teach Process Hrs. Tut. Hrs SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT Maximum Resources Required	
SCHEME OF STUDY S. No. Learning Content Teaching — Description of T-L Process Learning Method Process 1 Software defined networking, network function virtualization, difference between SDN and NFV for IoT SCHEME OF STUDY Teaching — Description of T-L Process Hrs. Tut. Hrs Tut. Hrs Process Traditional Teacher will explain the contents and provide handout to students. SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT Maximum Resources Required	
S. No. Learning Content Teaching — Description of T-L Hrs. Software defined networking, network function virtualization, difference between SDN and NFV for IoT SCHEME OF STUDY Teaching — Description of T-L Hrs. Tut. Hrs. Tut. Hrs. Tout. Hrs. Tut. Hrs. Tout. Hrs. Feacher will explain the contents and provide handout to students. SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT Maximum Resources Required	
S. No. Learning Content Teaching — Learning Method Software defined networking, network function virtualization, difference between SDN and NFV for IoT SCHEME OF ASSESSMENT Teaching — Description of T-L Process Treach Pract./ LRs Required Teacher will explain the contents and provide handout to students. SCHEME OF ASSESSMENT Maximum Resources Required	
Learning Method Process Hrs. Tut. Hrs Software defined networking, network function virtualization, difference between SDN and NFV for IoT SCHEME OF ASSESSMENT Learning Method Process Hrs. Tut. Hrs Tut. Hrs Tut. Hrs Contents Assessment Books / In the provide handout to students. SCHEME OF ASSESSMENT Maximum Resources Required	
network function virtualization, difference between SDN and NFV for IoT Description of Assessment Description of Assessment Description of Assessment Lecture explain the contents and provide handout to students. Books / I Contents Books / I Contents Contents	uired Remarks
S No Method of Assessment Description of Assessment Maximum Resources Required	E-
S No. Method of Assessment Description of Assessment	
Marks	External / Internal
1 LAB WORK-2 Student will be asked to draw and explain architecture of IoT networking architecture. 10 Assignment/Quiz	Internal
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

DCD/	//Diplo	ma Wing) Bhopal	SCH	IEME FOR LEAR	NING	Bra	ınch (ode	Co	urse C	ode	CO Code	LO Code	5 / 1
NOF	v (Dipio	ilia wilig <i>j</i> bilopai		OUTCOME		С	0	4				3	9	Format No. 4
Course	Name			IN	TERNE	ГОБ	THI	NGS						
CO Des	cription	Relate the differences	and sim	ilarities between Io	Γ and M2	2M.								
LO Des	cription	Identify system manag	gement f	for internet of things	5.									
				SCHEME	OF STU	DY								
S. No.	Learning	g Content		Teaching – Learning Method	Descrip Process		f T-L	Te Hr	ach s.	Prac Tut.	-	LRs Ro	equired	Remarks
1	N	Basics of IoT System Management with NETCO YANG- NETCONF, YAN SNMP NETOPEER.		Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to		7	(0	Hande Books Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	of Assessment	Descrip	tion of Assessment		ximuı ⁄Iarks	m		Reso	ırces	Requi	red	Exte	ernal / Internal
1 TERM WORK THEORY -2 write r			write no	will be asked to ote on system ement for IoT.		10			Assi	gnme	nt/Qı	ıiz		Internal
		ADDI	TIONAL	. INSTRUCTIONS F	OR THE	HOD	/ FA	CUL.	ΓΥ (IF	ANY)			

DCD\/	/Diplor	na Wing \ Phonal	SCI	HEME FOR LEAR	NING	Bra	nch C	ode	Cou	Pract./ Tut. Hrs ()	ode	CO Code	LO Code	
KGPV	ווטוקוטו	na Wing) Bhopal		OUTCOME		С	0	4				4	10	Format No.
Course	Name			IN	TERNE	ΓOF '	THIN	NGS						
CO Des	cription	Build basic IoT device	es for m	achine automation.										
LO Des	cription	Choose IoT devices an	nd softw	are for automation s	system.									
				SCHEME	OF STU	DY								
S. No.	Learning	Content		Teaching – Learning Method	Descript Process		f T-L	Teac Hrs.	ch		•	LRs R	equired	Remarks
1	a • In R	Basic Building blocks of Device, IoT Physical Devind Endpoints. Introduction to Arduino a Raspberry Pi- Installation terfaces (serial, SPI, I20) other IoT devices.	rices nd ,	Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to	7	7	()	Hando Books Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	of Assessment	Descrip	otion of Assessment	-	ximur ⁄larks	n	R	Resou	rces F	Requi	red	Exte	rnal / Interna
1	END SE	M PRACTICAL	write li hardwa	t will be asked to list st of different are and software used lop automation tion.		10			I	Lab T	est			External

DCD\/	/Diplos	na Wing) Phonal	SCH	IEME FOR LEAR	NING	Bra	nch C	ode	Cours	e Code	CO Code	LO Code	
KGPV	וטואוטו	na Wing) Bhopal		OUTCOME		С	0	4			4	11	Format No.
Course	Name			IN	TERNE	ТОБ	THIN	NGS					
CO Des	cription	Build basic IoT device	es for ma	achine automation.									
LO Des	cription	Develop basic prograi	ns to co	ntrol IoT devices.									
				SCHEME	OF STU	DY							
S. No.	Learning	g Content		Teaching – Learning Method	Descrip Process		f T-L	Teac Hrs.		ract./ ut. Hrs		equired	Remarks
1	i i	Programming — C program Raspberry PI with focus on Interfacing external gadge Controlling output, reading From pins.	on ets,	Traditional Lecture method + Handout	Teacher explain contents provide students	the and hando	out to	7		0		outs / s / E- ents	NIL
				SCHEME OF	ASSESS	MEN	Т						
S. No.	Method	of Assessment	Descrip	tion of Assessment		ximui Marks	m	R	esour	es Req	uired	Ext	ernal / Interna
1	Stude write control co			o/Raspberry Pi		10			La	b Test			External
		ADDI	TIONAL	INSTRUCTIONS F	OR THE	HOD	/ FA	CULTY	(IF A	NY)			

me	a Wing) Bhopal			NING			ode		ourse C	.ouc	Code	Code	Format No.
me			OUTCOME		С	0	4				4	12	Format No.
			IN	TERNE	r of	THI	NGS	•		•			
ption	Build basic IoT device	es for ma	chine automation.										
ption	Utilize IoT hardware	for home	automation applica	ation.									
			SCHEME	OF STU	DY								
earning	Content		Teaching – Learning Method	Descript Process	ion o	f T-L				•	LRs Re	equired	Remarks
Power Cont Relay speed Cont	Buzzer, Switching Higher devices with transistor rolling AC Power devices, Controlling servomoral control of DC Motor, rolling Motion Detection	h rs, es with tor,	Traditional Lecture method + Handout	explain contents provide	the and hando	ut to		7		0	Books	s / E-	NIL
			SCHEME OF	ASSESS	MEN	Т							
/lethod	of Assessment	Descript	ion of Assessment	_	_	n		Reso	urces	Requi	ired	Exte	rnal / Internal
END SEM PRACTICAL design			nd run home		10				Lab '	Гest			External
e	Cont. Relay speed Cont. Senso	Controlling Hardware-Connected, Buzzer, Switching Hig Power devices with transistor Controlling AC Power device Relays, Controlling servomo speed control of DC Motor, Controlling Motion Detection Sensors. ethod of Assessment ND SEM PRACTICAL	Controlling Hardware-Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. Pethod of Assessment Descript Student design a automatic	SCHEME arning Content Teaching — Learning Method Controlling Hardware-Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. SCHEME OF ethod of Assessment Description of Assessment Student will be asked to design and run home automation application.	Teaching — Learning Method Controlling Hardware-Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. CHEME OF STURN Teaching — Learning Method Process Traditional Lecture explain to contents Handout Students SCHEME OF ASSESS Ma No SCHEME OF ASSESS Ma Student will be asked to design and run home automation application.	Teaching — Learning Method Controlling Hardware-Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. CHEME OF STUDY Teaching — Learning Method Process Traditional Lecture method + contents and provide handout students. SCHEME OF ASSESSMEN Maximur Marks Student will be asked to design and run home automation application.	SCHEME OF STUDY SCHEME OF STUDY	SCHEME OF STUDY arning Content Teaching – Learning Method LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. SCHEME OF ASSESSMENT Maximum Marks Student will be asked to design and run home automation application.	SCHEME OF STUDY SCHEME OF STUDY SCHEME OF STUDY STUDY	SCHEME OF STUDY SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT Scheme STUDY SCHEME OF ASSESSMENT Scheme STUDY Scheme STUDY	SCHEME OF STUDY arning Content Teaching — Learning Method LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. SCHEME OF STUDY Teaching — Description of T-L Process Traditional Lecture method + contents and provide handout to students. SCHEME OF ASSESSMENT Teach Pract./ Process Tut. Hrs 7 0 Controlling AC Power devices with Relays, Controlling servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. SCHEME OF ASSESSMENT Teacher will explain the contents and provide handout to students. SCHEME OF ASSESSMENT Maximum Marks Student will be asked to design and run home 10 Lab Test	SCHEME OF STUDY arning Content Teaching — Learning Method LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling Servomotor, speed control of DC Motor, Controlling Motion Detection Sensors. SCHEME OF ASSESSMENT COHEME OF ASSESSMENT Student will be asked to design and run home automation application. SCHEME OF ASSESSMENT SCHEME OF ASSESSMENT Resources Required Maximum Marks Resources Required Lab Test	SCHEME OF STUDY arning Content Teaching — Learning Method Process Power devices with transistors, Controlling AC Power devices with Relays, Controlling Sensors. SCHEME OF STUDY Teaching — Description of T-L Process Hrs. Tut. Hrs Teacher will explain the contents and provide handout to students. SCHEME OF ASSESSMENT Assign and run home automation application.

RGPV (Diploma Wing) Bhopal		SCI	HEME FOR LEAR	NING	Bra	nch C	ode	e Course Code Code Code		1				
KGPV (GPV (Dipionia Wing) Bilopai			OUTCOME			0	4				5 13		Format No. 4
Course I	Name		·	IN	TERNE	ΓOF	THI	NGS		·	·			
CO Description Interpret of different IoT plat			forms design metho	dology.										
LO Desc	cription	Outline methodology	and desi	gn for IoT system.										
				SCHEME	OF STU	DY								
S. No.	Learning	arning Content		Teaching – Learning Method	Descrip [®] Process	tion o	f T-L		each rs.		ct./ :. Hrs	LRs Required F		Remarks
1	Introduction, IoT Design and Methodology- Purpose and requirements specification, Process specification, Domain model specification.		rocess	Traditional Lecture method + Handout	explain contents provide	Teacher will explain the contents and provide handout to students.		7			0	Hand Book Conte	s / E-	NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	of Assessment	Descrip	ntion of Assessment	_	ximuı ⁄larks	m		Res	ources	Requ	ired	Exte	ernal / Internal
1	END SE	CM THEORY EXAM		t will be asked to nethodology of IoT		10			Test Paper				External	
		Δηη	TIONA	L INSTRUCTIONS F	OR THE	HOD	/ FA	CHI	TV (I	FΔN	/)			

CO

LO

RGPV (Diploma Wing) Bhopal		SCI	HEME FOR LEAR	NING	Bra	Branch Code Course Code		ode	CO LO Code Code		5 /			
			OUTCOME		С	0	4				5	14	Format No. 4	
Course	Name			IN	TERNE	ΓOF	THIN	NGS						
CO Description Interpret of different IoT		IoT plat	T platforms design methodology.											
LO Des	cription	Summarize cloud tech	nology	for IoT storage solu	tion.									
				SCHEME	OF STU	DY								
S. No.	Learning	Content	Teaching – Learning Method	Descrip ^o Process	tion o	f T-L	Te Hr	ach Pract./ LRs Reques. Tut. Hrs		equired	Remarks			
1	Offe Stora	IoT Physical Servers and Cloud Offerings— Introduction to Cloud Storage models and communication APIs.		Traditional Lecture method + Handout	Teacher will explain the contents and provide handout to students.		out to		7 0		0	Handouts / Books / E- Contents		NIL
				SCHEME OF	ASSESS	MEN	Т							
S. No.	Method	nod of Assessment Descrip		otion of Assessment	-	ximuı ⁄larks	m	Resources Requ			Requi	ired External / Inter		
1	TERM WORK THEORY -3 explain for Ion		explain	t will be asked to cloud technology storage ement.		10			Assignment/Quiz			ıiz	Internal	
		ADDI	TIONA	L INSTRUCTIONS F	OR THE	HOD	/ FA	CUL.	ΓΥ (IF	ANY)			

Т

RGPV (Diploma Wing) Bhopal		SCH	SCHEME FOR LEARNING OUTCOME		Branch Code		e Course Code		CO Code	LO Code	- 5				
					С	0	4				5	15	Format No.		
Course I	Name		-	IN	TERNE	T OF	THI	NGS			l				
CO Desc	cription	Interpret of different	IoT platfo	orms design metho	dology.										
LO Desc	cription	List various ethics in	IoT.												
		,		SCHEME	OF STU	DY									
S. No.	Learning	Learning Content		Teaching – Learning Method	Descrip Process	ription of T-L		Teac Hrs.	h	Pract./ Tut. Hrs		LRs Required		Remarks	
1	Characterizing the IoT, Privacy, Control – Disrupting Control, Crowd sourcing; Environment Physical thing.		1,	Traditional Lecture method + Handout	explain contents	ncher will blain the stents and vide handout to dents.		t to		(0 Hand Book Conte			NIL	
				SCHEME OF	ASSESS	MEN	Т								
S. No.	Method	hod of Assessment Description of Assessm		ion of Assessment		aximu Marks	m	R	Resources Required		red	d External / Interi			
1	END SE	SEM THEORY EXAM write eth		will be asked to iics need to be I in IoT system.		10		Test Paper			aper	1		External	
		ADD	ITIONAL	INSTRUCTIONS F	OR THE	HOD	/ FA	CULTY	(IF	ANY)				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICU COU Internet	FORMAT-3	Sheet No.	
Branch	COMPUTER S	SCIENCE AND EN	GINEERING	Semester	SIXTH
Course Code	6хх	Course Name	Internet of Things		
			•	(<u>Hrs</u>)	(<u>Marks</u>)
Course Outcome 1	ourse Outcome 1 Interpret the vision of IoT from a global context.				
Learning Outcome 1	Define basic concept	ts of Internet of Things.		7	ET(10)
Contents		o Internet of Things-Defin f IoT, Challenges to imple	ition and Characteristics of IoT nent IoT.	, Applications of	TIOT,
Method of Assessment	End Term Examina	tion			
Learning Outcome 2	Classify various dev	ices used in IoT.		7	ET (10)
Contents	Sensors, Actu Communication	· · · · · · · · · · · · · · · · · · ·	oT – IoT Protocols, IoT comm	unication models	, IoT
Method of Assessment	End Term Examina	tion			
Learning Outcome 3	Compare different t	echnologies used in IoT.		7	TW(10)
Contents		•	nsor Networks, Cloud Comput IoTs – Home, City, Environmo	•	•
Method of Assessment	Term work Theory				

	Illustrate the application of IoT in various Domains.	21	30
Learning Outcome 4	Explain uses of IoT within a home and city.	7	ET(10)
Contents	 Home automation- Smart lighting, smart appliances, intrusion detection, Cities- Smart Parking, Smart lighting, Smart Roads, Structural Health M Emergency Response. 	•	
Method of Assessment	End Term Examination		
Learning Outcome 5	Outline IoT applications in field of environment and life style.	7	ET (10)
Contents	 Environment- Weather monitoring, air pollution monitoring, noise pollu detection, river flood's detection; Energy- Smart grids, renewable energy systems, prognostics; Retail- Inv payments, smart vending machines; Health and Life Style-Health and fitness monitoring, Wearable. 		
Method of Assessment	End Term Examination		
Learning Outcome 6	Summarize of IoT for industry automation.	7	LW(10)
Learning Outcome 6 Contents	 Logistics- Route generation and scheduling, Fleet tracking, Shipment mediagnostics; Agriculture- Smart Irrigation, Green house control; 	onitoring, Rem	, ,
	Logistics- Route generation and scheduling, Fleet tracking, Shipment modiagnostics;	onitoring, Rem	, ,
Contents	 Logistics- Route generation and scheduling, Fleet tracking, Shipment modiagnostics; Agriculture- Smart Irrigation, Green house control; Industry- Machine diagnosis and prognosis, indoor air Quality monitoring 	onitoring, Rem	, ,

Contents	Introduction IoT and M2M communication, Difference between IoT and	d M2M,	
Method of Assessment	End Term Examination		
Learning Outcome 8	Draw networking architecture for IoT.	7	LW (10)
Contents	 Software defined networking, network function virtualization, difference IoT. 	e between SDI	N and NFV for
Method of Assessment	Internal Lab Work		
Learning Outcome 9	Identify system management for internet of things.	7	TW(10)
Contents	Basics of IoT System Management with NETCOZF, YANG- NETCON NETOPEER	F, YANG, SN	MP
Method of Assessment	Term work Theory		
Course Outcome 4	Build basic IoT devices for machine automation.	21	30
Learning Outcome 10	Choose IoT devices and software for automation system.	7	ET(10)
Contents	 Basic Building blocks of an IoT Device, IoT Physical Devices and Endp Introduction to Arduino and Raspberry Pi- Installation, Interfaces (seria Other IoT devices. 		
Method of Assessment	External Practical		
Learning Outcome 11	Develop basic programs to control IoT devices.	7	ET (10)
Contents	 Programming – C program with Raspberry PI with focus on interfacing output, reading input from pins. 	external gadge	ets, controlling

Method of Assessment	External Practical		
Learning Outcome 12	Utilize IoT hardware for home automation application.	7	ET(10)
Contents	 Controlling Hardware-Connecting LED, Buzzer, Switching High Powe Controlling AC Power devices with Relays, Controlling servomotor, sp Controlling Motion Detection Sensors. 		
Method of Assessment	External Practical		
Course Outcome 5	Interpret of different IoT platforms design methodology.	21	30
Learning Outcome 13	Outline methodology and design for IoT system.	7	ET(10)
Contents	Introduction, IoT Design and Methodology- Purpose and requirements specific Domain model specification,	ation, Process s	specification,
Method of Assessment	End Term Examination		
Learning Outcome 14	Summarize cloud technology for IoT storage solution.	7	TW (10)
Contents	IoT Physical Servers and Cloud Offerings—Introduction to Cloud Stora APIs.	ge models and	 communication
Method of Assessment	Term work Theory		
Learning Outcome 15	List various ethics in IoT.	7	ET(10)
		<u> </u>	1
Contents	 Characterizing the IoT, Privacy, Control – Disrupting Control, Crowd s Physical thing, 	ourcing; Enviro	onment

LIST OF PRACTICALS

- 1. Study of Arduino/Raspberry Pi, various connectors, breadboard, cable and tools used in IoT applications.
- 2. Familiarization with Arduino/Raspberry Pi and perform necessary software installation.
- 3. To interface LED/Buzzer with Arduino/Raspberry Pi and write a program to turn ON LED.
- 4. To interface Buzzer with with Arduino/Raspberry Pi and write a program to turn ON LED when sensor detect obstacle.
- 5. To interface Push button/Digital sensor (IR/LDR) with Arduino/Raspberry Pi and write a program to turn ON LED when push button is pressed or at sensor detection.
- 6. To interface motor using relay with Arduino/Raspberry Pi and write a program to turn ON motor when push button is pressed.

Text Books:

- 1. Internet of Things A Hands on Approach, By Arshdeep Bahga and Vijay Madisetti Universities Press.
- 2. Designing the Internet of Things Adrian McEwen & Hakim Cassimality Wiley India.
- 3. Raspberry Pi Cookbook, Software and Hardware Problems and solutions, Simon Monk, O'Reilly (SPD), 2016.

Reference Books:

- 1. The Internet of Things Key Applications and Protocols, Wiley Publication, Olivier Hersent, David Boswarthick, Omar Elloumi.
- 2. The Internet of Things , Pearson, By Michael Miller