RGPV WING) B	(DIPL SHOPAL	ОМА	OBE CURRI COURSE	CULUM FOR TI	HE FORM	IAT-3	Sheet No. 1/5
Branch I	nformatio	n Tec	hnology		Semester	VI	
Course Code			Course Name	IoT with Cloud	Computing	9	
Course Ou 1	tcome -	Make	use of IoT Dev	elopment tools		Teach Hrs	Mark s
Learning (	Outcome	Expla	in Internet of 1	Things		8	10
Contents		• Id	oT Principles, Cha	tures & it's compo Illenges & Applica work & IoT Archit el	tions	1	•
Method Assessmen	of	Exteri	nal: End semeste	r theory examina	tion (Pen pa	per test	:).
Learning (	Outcome	Demo	onstrate IoT orm.	development	tools and	d 7	10
Contents		M	lega, arduino fun	Fools: Arduino, ardamentals & it's conduction, configur	configuration	)	
Method Assessmen		Interr	nal: Mid semester	theory examinat	ion (Pen par	per test	).
Learning 3	Outcome	Expe	riment with IoT	· IDE		6	10
Contents		b	nstalling Arduino link without delay emonstration of		ning Sketch	es (blir	nking LED,
Method Assessmen	of	Exteri	nal: Laboratory o	bservation and vi	va voce.		
RGPV WING) B	(DIPL HOPAL	ОМА	OBE CURRI COURSE	CULUM FOR TI	HE FORM	IAT-3	Sheet No. 2/5

Branch	Inform	nation Tec	hnology		Semester	VI	
Course Code			Course Name	IoT with Cloud	l Computing		
Course C	outcome		truct IoT a		using IoT	Teac h Hrs	Mark s
Learning 4	Outco	me Expla	ain sensors, act	uator & protoco	ls for IoT	10	10
Contents		• A • M • O	oT Sensors: Incomponents, work actuator and it's tylicrocontroller for overview of IoT	ing principles of o ypes IoT protocols: MQTT	different sensc	ors	
Method Assessme	ent	of Exteri	nal: End semeste	r theory examina	tion (Pen pape	er test).	
Learning 5	Outco		trate different cations	t smart rea	l-time IoT	5	10
Contents			ase Studies: Sm agriculture	art cities, smart	health service	e, smart	t home,
Method Assessme	ent	of Interr	nal: Mid semester	theory examinat	tion (Pen pape	r test).	
Learning 6	Outco	me Expe	riment with ino	IoT compone	ents using	6	10
Contents		• P	erform interfacing erform interfacing erform interfacing	g of actuators wit	h Arduino	•	
Method Assessme	ent	of Intern	nal: Lab Observat	ion/Assignment			
RGPV WING)	-	DIPLOMA AL	OBE CURRI COURSE	CULUM FOR T	HE FORMA		Sheet No. 3/5
Branch	Inforn	nation Tec	hnology		Semester	VI	

Course Code			Course Name	IoT with Cloud	Computing				
Course Outo	come -		different IoT le IoT application	technologies fo ons.	r designing	Teac h Hrs	Mark s		
Learning O	utcome	Expla	in technologies	8	10				
Contents		<ul><li>Z</li><li>Ic</li><li>R</li><li>Ic</li></ul>	IGBEE, WIFI, WI oT Communicati	nnologies Overvion MAX, Bluetooth, I on Models (Pub all, Exclusive pair) issues in IoT	Pv4 & IPv6 lisher Subscr				
Method Assessment	of	Exteri	nal: End semeste	r theory examina	tion (Pen pape	er test).			
Learning O	utcome	Comp	pare machine to	machine with 1	ГоТ	7	10		
Contents		• Ir	ndustry 4.0 sta	2M value chains, andard Overview SDN), Network Fu	: Introduc	tion, S	oftware		
Method Assessment	of	Exteri	nal: End semeste	r theory examina	tion (Pen pape	er test).			
Learning O	ıtcome	Make	use of IoT tech	nnologies		6	10		
Contents		1	•	sing Arduino with emperature Monit			_		
Method Assessment	of	Exteri	nal: Laboratory o	bservation and vi	va voce.				
RGPV WING) BH	(DIPL OPAL	ОМА	OMA OBE CURRICULUM FOR THE FORMAT-3 Sheet No. 4/						
Branch In	formatio	n Tec	hnology		Semester	VI			
Course Code			Course Name	IoT with Cloud Computing					

Course Out	tform & its	Teac h Hrs	Mark s						
Learning O	utcome	Expla	in Cloud comp	uting & its servi	ces	8	10		
Contents		• C	loud services (SA	definition, feature AAS, PAAS, IAAS) lybrid cloud, Cloud	, Cloud Archite	ecture	ns,		
Method Assessment	of :	Exterr	nal: End semeste	er theory examina	tion (Pen pape	er test).			
Learning O	utcome	Outli	ne Cloud platfo	rm for IoT.		7	10		
Contents			study on availab gSpeak	le IoT Cloud Platf	orm like AWS	IoT/ A	zure IoT		
Method Assessment	of	Intern		er/Quiz/Short An	swer type o	uestior	ıs (pen		
Learning O	utcome	Make	use of IoT clou	ud platform.		6	10		
Contents		Setup working environment for available IoT cloud platform (AWS/AZURE/ThingSpeak)							
Method Assessment	of	Exterr	nal: Laboratory o	bservation and vi	va voce.				
RGPV WING) BH	(DIPL	ОМА	OBE CURRI COURSE	CULUM FOR T	HE FORMA		Sheet No. 5/5		
Branch Ir	nformatio	n Tecl	hnology		Semester	VI			
Course Code			Course Name	IoT with Cloud	Computing				
Course Out	come -	Apply Cloud computing data services for IoT to develop real time application					Mark s		
Learning O	outcome	Explain cloud storage, virtualization & 7 10 security							

Ī	<u> </u>									
Contents	service requirement, Cloud adoption model	<ul> <li>Cloud Storage, High availability &amp; disaster recovery, Cloud service requirement, Cloud adoption model</li> <li>Cloud Virtualization Technologies, Cloud security &amp; Vulnerability</li> </ul>								
Method of Assessment	External: End semester theory examination (Pen pape	External: End semester theory examination (Pen paper test).								
Learning Outcome 14	Demonstrate Lifecycle of Cloud data for IoT, IoT Levels and deployment templates	8	10							
Contents	<ul> <li>IoT cloud-data Collection, IoT data analytics, IoT</li> <li>Different IoT levels for real-time application dep</li> <li>1: Home Automation, Level-2: Smart Irrigate</li> <li>Package Tracking, Level-4: Noise Monitoring, I</li> <li>Fire Detection, Level-6: Weather Monitoring System</li> </ul>	oloyment ition, L evel-5:	t (level evel-3:							
Method of Assessment	External: End semester theory examination (Pen pape	er test).								
Learning Outcome 15	Develop IoT applications using cloud computing approach	6	10							
Contents	Develop small IoT real-time application based on cloud service									
Method of Assessment	Internal: Lab Observation/Assignment									

**NOTE:** \*"available" means latest tools / technology, since tools name mentioned as per current industry trends that may get change over course of time hence faculties are not restricted to teach or follow tools as mentioned, faculties can have their option with change of tool technology.

## **REFERENCE BOOKS:**

S No	Title & Publication	Author
1	Internet of things: Architecture and Design principles published by McGraw Hill.	Rajkamal
2.	Internet of things: A hands on approach	Arshdeep Bahga
3.	Internet of Things: Do it yourself projects with Arduino, RaspberryPi and BeagleBone black	Donald Norris
4.	Cloud Computing , published by Wiley publication	Dr. Kumar Sourabh
5.	https://nptel.ac.in/courses/106/105/106105166/	Video Lecture, IITKGP
6.	https://www.javatpoint.com/iot-internet-of-things	Web resource
7.	https://www.arduino.cc/	Web resource
8.	https://docs.arduino.cc/tutorials/	Web resource
9.	https://docs.aws.amazon.com/iot/latest/developerguide/iot -gs.html	Web resource
10.	E-books/E-tools/Relevant software to be used as recommended by AICTE/RGPV	

RO	GPV (Diplo	oma Wing ) Bhopal		OR LEARNING	Bra	Branch Code Co		ourse C	ode	CO Code	LO Code	Forn	nat No. 4		
	· ( F	8) II	OUT	OUTCOME		0	4				1	1		2 02 22200 2 (00 2	
Course	Name	IoT with Cloud Con	nputing									1			
CO Des	scription	Make use of IoT De	velopment tools												
LO Des	scription	<b>Explain Internet of</b>	Things												
		<u>'</u>		SCHEME O	F STUI	ΡΥ									
S. No.		Learning Cont	ent	Teaching – Learning Method	D		tion of T	Γ-L	Teac h Hrs.	Pract. /Tut Hrs.		Rs Requi	ired	Remark	
1	<ul><li>IoT Pr</li><li>Conce</li></ul>	Definition, features & it's rinciples, Challenges & eptual Framework & IoTeference model	Applications	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	the prostu con qui stu	contention contents. 'dents.' aduct a z/tutor	will explored to the control of the	to will ents/ ake	8	NIL	boar	douts, ch rd, PPT, t k, charts, eo film.	text		
				SCHEME OF A	SSESSI	MENT									
S No	N/L-41	ad of Assassment	Description of		Maxi	mum			D	nos Dogu			Ex	ternal /	

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Marks

10

**Resources Required** 

Question paper + Rating scale

Internal

External

**Description of Assessment** 

Pen Paper Test

S. No.

1

**Method of Assessment** 

End semester theory

examination

Faculties must aware students with IoT Components, Framework & their real time applications

RGPV (Diplo	ma Wing ) Bhopal	SCHEME FOR LEARNING	Branch Code		Course Code		ode	CO Code	LO Code	Format No. 4	
rest v (Sipionia ving / Shopar		OUTCOME	I	0	4				1	2	
Course Name	IoT with Cloud Com	puting			·	·					
CO Description	CO Description Make use of IoT Development tools										
LO Description Demonstrate IoT development tools and platform.											
	COMPLAN										

S. No.	Learning Content	Teaching — Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	<ul> <li>IoT development Tools: Arduino, arduino types like Uno / Nano / Mega, arduino fundamentals &amp; it's configuration</li> <li>Raspberry Pi: Introduction, configuration, board setting</li> </ul>	Interactive classroom teaching, demonstratio n, 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.	7	NIL	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	Mid semester theory examination (Pen paper test).	Pen Paper / Quiz / Short Answer	10	Test Paper + rating scale	Internal

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

- Instructor explains the basic fundamental of Arduino & Raspberry Pi with their Pin Configuration
- Instructor & Students can use the online browser Simulator "Wokwi" for simulate Arduino projects without any hardware. The can be able to download their sketch from it.

RGPV (I	Diploma Wing ) Bhopal	SCHEME FOR LEARNI	NG Br	anch (	Code	Course Coo	de CO Code	LO Code	Format No. 4
(-		OUTCOME	I	0 4		1	3		
Course Name	e IoT with Cloud Con	nputing							
CO Descripti	on Make use of IoT De	velopment tools							
LO Descripti	on Experiment with Io	T IDE							
	<u>'</u>	SCHE	ME OF STU	DY					
S. No.	Learning Content	Teaching – Learning D	escription of	T-L	Teach	Pract. /Tut	LRs Requ	uired	Remarks

S. No.		Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	•	Installing Arduino IDE, Perform running Sketches (blinking LED, blink without delay) Demonstration of Raspberry Pi	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	6	Handouts, chalk board, PPT, text book, charts, Computers IDE	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory observation and viva voce.	Student will be asked to installation procedure of Arduino IDE & perform small practical / Laboratory observation Viva	10	Observation schedule/check-list /rating scales /rubrics	External

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty can be refer the official site (<a href="https://www.arduino.cc/en/software">https://www.arduino.cc/en/software</a>) for downloading the Arduino software & it's learning document. After Installing the IDE, open the IDE & go to file menu, there are many Built in Examples which can be performed by faculty & students.

RG	PV (Dinlor	na Wing ) Bhopal		IE FOR LEAR	NING	Bı	anch (	Code	Cours	Course Code		Code	Code	Format No. 4
110	- (2-p-0-	(,g ) 2opu.		OUTCOME		I	0	4				2	4	
Course 1	Name	IoT with Cloud Co	omputing											
CO Des	cription	Construct IoT app	olications using	IoT Compone	nts and <b>j</b>	protoc	ols							
LO Des	cription	Explain sensors, a	ctuator & prot	ocols for IoT										
				SCH	IEME O	F STU	DY							
S. No.		Learning Content  Γ Sensors: Introduction, sensor types,		Teaching – Learning Method	_		iption of T-L Process		ch /	ract. Fut Irs.	l	LRs Req	uired	Remarks
1	<ul> <li>IoT Sensors: Introduction, sensor types, features, basic components, working principles of different sensors</li> <li>Actuator and it's types</li> <li>Microcontroller for IoT</li> <li>Overview of IoT protocols: MQTT, COAP, SOAP, REST, HTTP, XMPP, WEBSOCKET</li> </ul>		classroom teaching, demonstratio n, quiz, assignments,	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.			10 NIL		Handouts, chalk board, PPT, text book, charts, video film.					
				SCHEM	IE OF A	SSESS	MENT	Γ						
S. No.	Metho	d of Assessment	Description	on of Assessme	nt		kimum arks		Res	ource	es Req	uired		External / Internal
1		emester theory xamination	Pen	Paper Test			10		Questio	n pap	er + ra	iting scal	e	External
	l		ADDITIONAL	INSTRUCTIO	ONS FO	R THE	HOD	/ FACUI	LTY (IF A	NY)				1
					NII				· · ·					

CO

**Course Code** 

**Branch Code** 

LO

RGPV (Diplo	ma Wing ) Bhopal	SCHEME FOR LEARNING	В	ranch (	Code	Course Co	ode	CO Code	LO Code	Format No. 4
( P		OUTCOME	I	0	4			2	5	
Course Name	IoT with Cloud Cor	nputing								
CO Description	Construct IoT appli	ications using IoT Components and	proto	cols						
LO Description	Illustrate different s	smart real-time IoT applications								
		COMPLETE	T CET	TD T 7						

S. No.	Learning Content	Teaching — Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	IoT Case Studies: Smart cities, smart health service, smart home, smart agriculture	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.	

## SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Mid semester theory examination	Pen Paper / Quiz / Short answer	10	Test paper + Rating scale	Internal

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Students must be visit various website or web resources for IoT Case Studies like <a href="https://www.iotone.com/case-studies">https://www.iotone.com/case-studies</a>

RGPV (Diploma Wing ) Bhopal		SCHEME FOR LEARNING	Bı	Branch Code		Course Code	CO Code	LO Code	Format No. 4
		OUTCOME	I	0	4		2	6	
Course Name IoT with Cloud Computing									
CO Description	Construct IoT applic	eations using IoT Components and p	protoc	ols					
LO Description Experiment with IoT components using Arduino									
		SCHEME O	F STI	DV					

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	• Perform interfacing of sensors with Arduino	Interactive lab	Teacher will	NIL	6	Handouts,	
	• Perform interfacing of actuators with	classroom teaching,	demonstrate major			chalk	
	Arduino	demonstration, quiz,	components inside the			board,	
	• Perform interfacing of servomotor with	assignments,	lab to students,			PPT, text	
	Arduino	tutorial	students will practice,			book,	
			provide quiz,			charts,	
			assignment etc.,			video film.	
			teacher will conduct				
			remedial and tutorials.				

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Lab Observation/Assignment	Student will be asked to perform Arduino Interfacing with different IoT components via Lab Observation	10	Observation schedule/check-list /rating scales /rubrics	Internal

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty must be visit official arduino website for perform the interfacing of sensors, actuators & servomotors with Arduino. There are various small projects which will be done using it. Visit web resource like <a href="https://create.arduino.cc/projecthub/JANAK13/using-sensors-with-arduino-eablec">https://create.arduino.cc/projecthub/JANAK13/using-sensors-with-arduino-eablec</a>

RGPV (Diplo	ma Wing ) Bhopal	SCHEME FOR LEARNING	B	Branch Code		Course	<b>Course Code</b>		LO Code	Format No. 4	
		OUTCOME	I	0	4			3	7		
Course Name	IoT with Cloud Com	oT with Cloud Computing									
CO Description	Apply different IoT	ply different IoT technologies for designing simple IoT applications.									
LO Description Explain technologies & Model for IoT											
		207777.67	- ~								

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	• IoT Enabled Technologies Overview: RFID,		Teacher will explain	8	NIL	Handouts, chalk	
	NFC, 6LOWPAN, ZIGBEE, WIFI, WIMAX,		the contents and			board, PPT, text	
	Bluetooth, IPv4 & IPv6	teaching,	provide handouts to			book, charts,	
	• IoT Communication Models (Publisher	demonstration	students. Teacher will			video film.	
	Subscriber, RequestResponse, Push-Pull,	, quiz,	conduct assignments/				
	Exclusive pair)	assignments,	quiz/tutorial to make				
	<ul> <li>IoT Gateways</li> </ul>	tutorial	students practice their				
	<ul> <li>Privacy &amp; security issues in IoT</li> </ul>		knowledge.				

## SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale	External

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty must be given the overview & working principle of different IoT Enabled Technologies and necessity of IoT communication models.

RG	PV (Diplo	ma Wing ) Bhopal	SCHE	ME FOR LEARN	NING	Br	anch C	ode	C	Course Code		CO Code	LO Code	Format No. 4	
No	i (Dipio	ina (ting ) Dilopai		OUTCOME		I	0	4				3	8		
Course	Name	IoT with Cloud Co	mputing									'			
CO Des	cription	Apply different IoT	technologie	s for designing si	imple Io	T appl	ication	S.							
LO Des	cription	Compare machine	to machine v	vith IoT											
				SCH	EME O	F STU	DY								
S. No.		Learning Content		Teaching — Learning Method	Desc	ription Proce			Геасh Hrs.		act. Hrs.	LRs R	equired	Remarks	
1	IoT V Indust Introd	Overview , M2M value Chain, M2M Vs Identity 4.0 standard Couction, Software Defined), Network Function V	oT Overview : ned network	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	the corprovided student conduction quiz/tu	er will entents a le handets. Tea ct assigutorial to ts pracedge.	nd outs to cher wi nments o make	11	7	7 NIL		Handouts, chalk board, PPT, text book, charts, video film.		0	
	'			SCHEM	E OF A	SSESS	MENT	'						'	
S. No.	Metho	d of Assessment	Descrip	tion of Assessmer	nt		imum arks			Resou	rces R	equired		External / Internal	
1		semester theory xamination	Po	en Paper Test			10		Que	estion p	aper +	rating scal	e	External	
	1	A	DDITIONA	L INSTRUCTIO	NS FO	R THE	HOD/	FAC	ULTY (	(IF AN	<b>Y</b> )			l	
					NII					-					

RGPV (Diploma Wing ) Bhopal		SCHEME FOR LEARNING	В	Branch Code		Course Code		CO Code	LO Code	Format No. 4
		OUTCOME	I	0	4			3	9	
Course Name	IoT with Cloud Com	oT with Cloud Computing				· ·		·		
CO Description	Apply different IoT t	Apply different IoT technologies for designing simple IoT applications.								
O Description Make use of IoT technologies										
		SCHEME O	E CTI	IDV						

S. No.	Learning Content	Teaching — Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Perform experiment using Arduino with latest IoT Technologies for eg. Smoke detector, Temperature Monitoring, Garbage Collector		Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	6	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	Laboratory test by observation	Student will be asked to develop a simple IoT based application	10	Observation schedule/check-list /rating scales /rubrics	External

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty visit Arduino official website (<a href="https://create.arduino.cc/projecthub">https://create.arduino.cc/projecthub</a>) for performing IoT projects based on different technologies.

RG	RGPV (Diploma Wing ) Bhopal		SCHEME FOR LEARNING		Bra	anch (	Code	Co	urse Co	de	CO Code	LO Code	Format No. 4		
		g) -I	OUT	COME	I	0	4			4		4		10	
Course	Name	IoT with Cloud Con	nputing	,	'		<u>'</u>			'		'			
CO Des	cription	Construct Cloud ser	vices, cloud platfo	rm & its application	is for	IoT									
LO Des	cription	Explain Cloud comp	es												
		<u> </u>		SCHEME OF	STUI	DY									
S. No.		Learning Conte	nt	Teaching –	D	)escri <sub>j</sub>	ption of [	T-L	Teach	Prac	t <b>.</b>	LRs	. Remark		
5. 110.		Lear ming Conte	IIL	Learning Method		P	rocess		Hrs.	/Tut H	rs.	Required	l Kemark		
1	• Clo	ad computing definition,	features, benefits	Interactive	Te	acher	will expla	ain	8	NIL	]	Handouts,			
& limitations,				classroom teaching	, the	the contents and					(	chalk board	.,		
	• Cloud services (SAAS, PAAS, IAAS), Cloud			demonstration,	provide handouts to		to			]	PPT, text				
	Architecture				1.		1								
	Arc	nitecture		quiz, assignments,	stu	idents.	Teacher	Will			t	book, charts	S,		

conduct assignments/

quiz/tutorial to make students practice their

knowledge.

video film.

• Public, private & hybrid cloud, Cloud tutorial

Virtualization

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale	External

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

RGPV (Diplo	oma Wing ) Bhopal	SCHEME FOR LEARNING	В	ranch	Code	Course	<b>Course Code</b>		LO Code	Format No. 4
- · ( <b>r</b> -	g, -r	OUTCOME	I	0	4			4	11	
Course Name	IoT with Cloud Com	puting			·					
<b>CO Description</b>	<b>Construct Cloud ser</b>	Construct Cloud services, cloud platform & its applications for IoT								
LO Description	Outline Cloud platfo	rm for IoT								
		SCHEME O	F STU	JDY						

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Case study on available IoT Cloud Platform like AWS IoT/ Azure IoT / ThingSpeak	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will	7	NIL	Handouts, chalk board, PPT, text	
			conduct assignments/ quiz/tutorial to make students practice their knowledge.			book, charts, video film.	

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Quiz/ Short Answer type questions	Quiz/ Short Answer /Pen Paper	10	Pen paper test + rating scale	Internal

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

For performing the case studies, visit the official websites of AWS IoT (<a href="https://aws.amazon.com/iot-core/features/">https://aws.amazon.com/iot-core/features/</a>), Azure IoT(<a href="https://azure.microsoft.com/en-in/overview/iot/">https://azure.microsoft.com/en-in/overview/iot/</a>) & ThingSpeak (<a href="https://thingspeak.com/">https://thingspeak.com/</a>).

RGPV (Diplo	oma Wing ) Bhopal	SCHEME FOR LEARNING	B	ranch (	Code	Course C	<b>Course Code</b>		LO Code	Format No. 4
` 1	<i>3</i> / 1	OUTCOME		0	4			4	12	
Course Name	IoT with Cloud Com	nputing								
<b>CO Description</b>	<b>Construct Cloud ser</b>	vices, cloud platform & its applicati	ions fo	r IoT						
LO Description	Make use of IoT clou	ud platform.								
	'	COMPAG	T OTT	IDX7						

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Setup working environment for available IoT cloud platform (AWS/AZURE/ThingSpeak)	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	6	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	Laboratory observation and viva voce.	Student setup IoT cloud platform	10	Observation schedule/check-list /rating scales /rubrics	External

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty & Students setup IoT cloud environment for IoT analytics platform service that allows you to aggregate, visualize, and analyze live data streams in the cloud. (<a href="https://thingspeak.com/">https://thingspeak.com/</a>)

RG	RGPV (Diploma Wing ) Bhopal		IEME FOR LEARNING		Branch Code		Code	<b>Course Code</b>		CO Code	LO Code	Format No.		
	· ( F	g, -r	OUTCOME		I	0	4			5	13			
Course	Name	IoT with Cloud Computing							'	·				
CO Des	scription	Apply Cloud computing data	services for IoT to	o develop	real ti	me ap	plicatio	n						
LO Description Explain cloud storage, virtualization & security														
			SCH	EME OF	FSTUI	ΟY								
S. No.		Learning Content	Teaching – Learning Method	Descri F	ption o Process		Tea Hr		Pract. /Tut Hrs.	LRs I	Required	Remark		
1	<ul> <li>Cloud Storage, High availability &amp; disaster recovery, Cloud service requirement, Cloud adoption model</li> <li>Cloud Virtualization Technologies</li> </ul>			the cont	Teacher will explain the contents and provide handouts to students. Teacher will		ontents and de handouts to		7		NIL	Handouts board, PI book, cha film.	T, text	o

knowledge.

quiz,

assignments, tutorial

conduct assignments/

quiz/tutorial to make

students practice their

Cloud security & Vulnerability

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal	
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale	External	

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

RGPV (Diploma Wing ) Bhopal			SCHEME FOR LEARNING OUTCOME		Branch Code		Course (	Code	CO Code	LO Code	Format No. 4	
		OUTCON			0	4			5	14		
Course 1	Name	IoT with Cloud Con	nputing									
CO Des	cription	Apply Cloud compu	iting data services for l	oT to develop	real tir	ne app	licatio	on				
LO Des	cription	<b>Demonstrate Lifecy</b>	cle of Cloud data for Id	T, IoT Levels	s and de	ploym	ent te	mplates				
		<u>'</u>		SCHEME O	F STUI	Y						
S. No.	Le	earning Content	Teaching – Learning Method	Description Proc			each Irs.	Pract. /Tut Hrs.	LRs	s Require	ed	Remarks
1	IoT of life C Diffee time (leve Leve Leve Leve Detector)	rent IoT levels for real- application deployment l 1: Home Automation, l-2: Smart Irrigation, l-3: Package Tracking, l-4: Noise Monitoring,	classroom teaching, demonstration, quiz, assignments, tutorial	conduct assig	will explain nts and nandouts to Teacher will nssignments/ rial to make practice their		8	NIL	Handouts, chalk board, PPT, text book, charts, video film.		t	
		, , , , , , , , , , , , , , , , , , ,	SC	HEME OF A	SSESSI	1ENT					'	
S. No.	Metho	d of Assessment	Description of Assessment		Maxi Ma			Resou	rces Required			External / Internal
1		semester theory	Pen Paper Tes	st	1	0		Question paper + rating scale			External	
		Α	DDITIONAL INSTRU	CTIONS FO	R THE	HOD/	 FACU	JLTY (IF AN	<b>Y</b> )			
				NII				-				

RGPV (Diplo	ma Wing ) Bhopal	SCHEME FOR LEARNING		Branch Code			Course Code		CO Code		Format No. 4
- ( F		OUTCOME	I	0	4				5	15	
Course Name	IoT with Cloud Com	IoT with Cloud Computing									
CO Description	Apply Cloud computing data services for IoT to develop real time application										
LO Description Develop IoT applications using cloud computing approach											

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Develop small IoT real-	Interactive lab	Teacher will	NIL	6	Handouts, chalk board,	
	time application based on	classroom teaching,	demonstrate major			PPT, text book, charts,	
	cloud service	demonstration, quiz,	components inside			video film.	
		assignments,	the lab to students,				
		tutorial	students will practice,				
			provide quiz,				
			assignment etc.,				
			teacher will conduct				
			remedial and				
			tutorials.				

# SCHEME OF ASSESSMENT

S. No.	Method of Assessment	d of Assessment Description of Assessment		Resources Required	External / Internal
1	Lab Observation/Assignment	Student will be asked to develop a small IoT-Cloud based Project / Lab Observation	10	Observation schedule/check-list /rating scales /rubrics	Internal

# ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Faculty visit Arduino official website (<a href="https://create.arduino.cc/projecthub/products/arduino-iot-cloud">https://create.arduino.cc/projecthub/products/arduino-iot-cloud</a>) for performing IoT-Cloud projects based on different technologies.