Curriculum Structure Semester I

Course Number	Subject		Т	Р	Credits
PGIT(IoT)101	Program Core I- Mathematical foundations of Computer Science	3	0	0	3
PGIT(IoT)102	Program Core II- Advanced Data Structures	3	0	0	3
PGIT(IoT)103 A/B/C	Program Elective I- A. Data Science/ B. Wireless Access Technologies/ C. Mobile Applications and Services	3	0	0	3
PGIT(IoT)104 A/B/C	 Program Elective II- A. Machine Learning/ B. Smart Sensors and Internet of Things/ C. Logic and Functional Programming 	3	0	0	3
PGIT(IoT)105	Research Methodology and IPR	2	0	0	2
PGIT(IoT)106A/B/ C/D	English for research paper writing/ Disaster management/ Sanskrit for technical knowledge/ Value education	2	0	0	0
PGIT(IoT)192	Laboratory 1 (Advanced Data Structures)	0	0	4	2
PGIT(IoT)193A/B/ C	Laboratory 2 (Based on Elective I)	0	0	4	2
PGIT(IoT)194A/B/ C	Laboratory 3 (Based on Elective II)	0	0	4	2
	Total Cred	its: 20	·		-

Semester II

Course Number	Subject	L	Т	Р	
PGIT(IoT)201	Program Core III – Advanced Computer Architecture	3	0	0	3
PGIT(IoT)202	Program Core IV – Wireless and Sensor Networks	3	0	0	3
PGIT(IoT)203A/ B/C	 Program Elective III – A. Sensor Networks and Internet of Things B. Data Visualization C. IoT Application and Communication Protocol 	3	0	0	3
PGIT(IoT)204 A/B/C PGIT(IoT)205A/	Program Elective IV – A. Big Data Analytics B. Network Security C. Advanced Machine Learning Audit Course		0	0	3
B/C/D PGIT(IoT)291	Advanced Computer Architecture Lab	0	0	4	2
PGIT(IoT)292	Wireless and Sensor Networks Lab	0	0	4	2

PGIT(IoT)293A/ B/C	Lab based on Elective III	0	0	4	2	
PGIT(IoT)281	Term Paper with Seminar					
		0	0	4	2	
	Total Credits: 20					

Semester III

Course Number	Subject	L	Т	Р	Credits
PGIT(IoT)301A/B/ C	 Program Elective V – A. Cloud Computing B. Real Time Operating Systems C. Emulation and Simulation Methodologies 	3	0	0	03
PGIT(IoT)302A/ B/C/D/E/F	Open Elective A. Business Analytics B. Industrial Safety C. Operations Research D. Cost Management of Engineering Projects E. Composite Materials F. Waste to Energy	3	0	0	03
PGIT(IoT)381	Dissertation-I /Industrial Project	0	0	20	10
	Total Credits: 16				

Semester IV

Course Number		L	Т	Р	Credits
	Subject				
PGIT(IoT)481	Dissertation II	0	0	32	16
	Total Credits: 16				

<u>Semester I</u>

	ode: PGIT(IoT)101	on of Computer Science Semester:1st				
	uration: 48 Hours Maximum Marks: 100					
	eaching Scheme Examination Scheme					
Theory: 3		End Semester Exam: 70				
Tutorial: (Attendance: 05				
Practical:		Internal Assessment: 25				
Credit: 3	1111	Practical Sessional internal continuous e	valuation	NA		
010010		Practical Sessional external examination				
Aim:						
Sl. No.						
1.	To understand the ba	sic notions of discrete and continuous pro	obability.			
2.		ethods of statistical inference, and the rol	-	npling distributions		
3.		o correct and meaningful statistical analys	ses of sim	ple to moderate		
Objective	<u> </u>					
Sl. No.						
1.		athematical fundamentals that are prerec				
		work protocols, analysis of Web traffic, Co				
	Machine learning.	er architecture, operating systems, distrib	-			
2.		standing of the mathematical and logical				
	-	ation technology like machine learning, p	rogramm	ing language design,		
2	and concurrency.					
3.	To study various sam	pling and classification problems.				
Dro Dogu	isito.					
Pre-Requ Sl. No.						
1.	Discrete Mathematics	N				
2.		•				
۷.						
Contents			Hrs./w	eek		
Chapter	Name of the Topic		Hours	Marks		
01	•	sity, and cumulative distribution	7	10		
U 1		c families of distributions, Expected				
		itional expectation, Applications of the				
		variate Central Limit Theorem,				
	Probabilistic inequal	•				
02		npling distributions of estimators,	7	12		
		and Maximum Likelihood				
3		Introduction to multivariate statistical	8	12		
		nd classification problems, principal				
	components analysis	The problem of overfitting				
	model assessment.					
4		rphism, Planar graphs, graph colouring,	11	16		
	Hamilton circuits and					
		mbinations with and without repetition.				
	Specialized technique	es to solve combinatorial enumeration				

ומ	oblems				
-		n Technology Applicatio	ns, Data mining, Networ	rk 10	15
		analysis of Web traffic, C			
So	oftware e	ngineering, Computer ar			
		stributed systems, Bioin			
	arning.	••••			
		nds in various distributi		5	5
		cal field of computer sci		ike	
	offiorma ib Total:	itics, soft computing, and	computer vision.	40	70
		essment Examination & Pr	enaration of Semester	40	30
	aminatio		eparation of semester		50
Т	otal:				100
Practical:					
Skills to be o	leveloped	d:			
List of Pract	ical: Sl. N	o. 1& 2 compulsory & at	least three from the res	t)	
Accience	. .				
Assignment	5:				
List of Book	S				
Text Books:					
Name of Aut	hor	Title of the Book	Edition/ISSN/ISBN	Name of th	ne Publisher
1. John	Vince,	Foundation		Springer.	
		Mathematics for			
		Computer Science,			
2. K. Tr	ivedi.	Probability and		Wiley.	
		Statistics with			
		Reliability, Queuing,			
		and Computer Science Applications.			
3.M.Mitzenn	nacher	Probability and			
and E. Upfal		Computing:			
		Randomized			
		Algorithms and			
		Probabilistic			
		Analysis.			
4. Alan	Tucker	Applied		Wiley	
		Combinatorics			
Reference B	ooks:				
List of equip	ment/ap	paratus for laboratory e	xperiments:	·	
Sl. No.					
1.					
2.					
3.					
4.					
5.					

End Seme	ster Examii	nation Scher	ne. Max	ximum Ma	rks-70.	Time al	lotted-3hrs.	
Group	Unit	Objective (MCQ only correct ans		Subjective Questions				
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks	
A B	1,2,3 4,5	12 8	20	5	3	10	70	
of t	the question p	oaper.	ents to maintai		in answering ob	jective questi	ons should be given on top	
Group		Chapter	Marks o questio		Question to set	be Ques	tion to be answered	
Examinat	ion Scheme	for Practica	l Sessional e	xaminatio	n:	I		
Practical	Internal Ses	ssional Conti	nuous Evalu	ation				
Internal E	Examinatior	1:					40	
Five No of Experimer	nts							
External Ex	xamination:	Examiner-					60	
experiment								
	periment(one isting 5 stude	nts)						
		Viva voce						

	he Course: M.Tech. in Idvanced Data Structu			
	de:PGIT(IoT)102,	Semester: 1st		
Duration:		Maximum Marks: 100+100		
Teaching	Scheme	Examination Scheme		
Theory: 3		End Semester Exam: 70		
Tutorial:	0	Attendance : 5		
Practical:	4	Continuous Assessment: 25		
Credit: 3 +	- 2	Practical Sessional internal continuous evaluation: 40		
		Practical Sessional external examination: 60		
Aim:				
Sl. No.				
1.	Understand the implementation of symbol table using hashing techniques.			
2.	Develop and analyze algorithms for red-black trees, B-trees and Splay trees.			

3.	Develop algorithms for text processing applications.		
<u>.</u> 4.	Identify suitable data structures and develop algorithms for c	omnutat	ional
	geometry problems.	omputut	lonui
Objective :	0 11		
SI. No.	The student should be able to choose appropriate data structu	ires, und	erstand
	the ADT/libraries, and use it to design algorithms for a specifi		
1.	Students should be able to understand the necessary mathem	_	
	to solve problems.		
2.	To familiarize students with advanced paradigms and data str	ucture u	sed to
	solve algorithmic problems.		
3.	Student should be able to come up with analysis of efficiency a	and proo	fs of
	correctness.		
Dera Dagert			
Pre-Requi	site:		
<u>Sl. No.</u>	UG level course in Data Structures		
<u>1.</u> 2.	OG level course in Data Structures		
۷.			
Contents		Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
)1	Dictionaries: Definition, Dictionary Abstract Data Type,	7	10
	Implementation of Dictionaries.		
	Hashing: Review of Hashing, Hash Function, Collision		
	Resolution Techniques in		
	Hashing, Separate Chaining, Open Addressing, Linear		
	Probing, Quadratic Probing, Double Hashing, Rehashing,		
	Extendible Hashing.		
)2	Skip Lists: Need for Randomizing Data Structures and	5	12
	Algorithms, Search and Update Operations on Skip Lists,		
	Probabilistic Analysis of Skip Lists, Deterministic Skip Lists		
03	Trees: Binary Search Trees, AVL Trees, Red Black Trees, 2-3	9	12
	Trees, B-Trees, Splay Trees 9	4.0	
04	Text Processing: Sting Operations, Brute-Force Pattern	12	16
	Matching, The Boyer- Moore Algorithm, The Knuth-Morris- Pratt Algorithm, Standard Tries, Compressed Tries, Suffix		
	Tries, The Huffman Coding Algorithm, The Longest Common		
	Subsequence Problem (LCS), Applying Dynamic		
	Programming to the LCS Problem.		
)5	Computational Geometry: One Dimensional Range	10	15
	Searching, Two Dimensional Range Searching, Constructing		
	a Priority Search Tree, Searching a Priority Search		
	Tree, Priority Range Trees, Quadtrees, k-D Trees.		
		_	
)6	Recent Trands in Hashing, Trees, and various computational	5	5
	geometry methods for effeciently solving the new evolving problem		
	Sub Total:	48	70
	Internal Assessment Examination & Preparation of Semester	10	30
	Examination		50
	Total:		100
	i otali.		

List of Pra	ctical: Sl. No	o. 1& 2 compu	lsory & at	least three	e from the res	t)		
Assignmen	its:							
List of Boo Text Books								
Name of Au	ıthor	Title of the H	Book	Edition/	ISSN/ISBN		ne of th lisher	ie
Reference	Books:							
	rk Allen	Data Structu	ires and	2nd Edit	ion	Pea	rson, 2	004
Weiss		Algorithm A C++						
2. M T	•	Algorithm D	esign			Joh	n Wiley	, 2002.
Goodrich,	Roberto							
Tamassia								
List of equi	ipment/ap	paratus for la	boratory ex	xperiment	S:			
Sl. No.	<u> </u>							
1.								
2.								
3.								
<u>4.</u> 5.								
-	ter Fxamin	ation Scheme	Max	imum Mai	rks-70	Т	ime all	otted-
3hrs.						•	inic un	otteu
Group	Unit	Objective Q			Subjective	Que	stions	
		(MCQ only wi						
		correct answe	er) Total	No of	To answer	Mar	ks per	Total
		question	Marks	question	i o unswei		stion	Marks
		to be set		to be set				
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
• Only part		pice type question	on (MCQ) wit	h one corre	ct answer are to	be set	in the c	bjective
• Spec	cific instructi			in the order	in answering ob	ojectiv	e questi	ons should
0		f the question p	A					
	on Scheme	for end semes			Ou oction to l		Ouest	ion to ho
Group		Chapter	Marks o question		Question to b set	Ле	answ	ion to be ered
Α		ALL	1		10		10	li cu
В		ALL	5		5		3	
С		ALL	15		5		3	
		for Practical S			n:			
		sional Contin	uous Evalu	ation				10
Internal Ex	amination							40

Five No of Experiments		
External Examination: Examiner-		60
Signed Lab Note Book(for five experiments)	10	
On Spot Experiment(one for each group consisting 5 students)	40	
Viva voce	10	

Namo of	the Course: M.Tech. in Internet	of Things				
	Data Science	or rungs				
		Semester: 1st				
PGIT(Io						
		ximum Marks: 100+100				
Teachin	g Scheme Exam	mination Scheme				
Theory:		Semester Exam: 70				
Tutorial		ndance : 5				
Practica	l: 4 Con	tinuous Assessment: 25				
Credit: 3 + 2		ctical Sessional internal continu	ous eva	luation:		
	Pra	ctical Sessional external examin	ation: 6	0		
Aim:						
Sl. No.						
1.	Explain how data is collected,	managed and stored for data scier	nce;			
2.	Understand the key concepts in data science, including their real-world applications and the toolkit used by data scientists;					
3.		d management scripts using Mong	oDB			
Objectiv	re:					
Sl. No.						
1.	Provide you with the knowled scientist.	lge and expertise to become a prof	icient da	ita		
2.	Demonstrate an understandin are vital for data science;	ng of statistics and machine learnin	ng conce	pts that		
3.	Produce Python code to statis	tically analyze a dataset;				
4.		izations based on their design and	use for			
	communicating stories from a	lata;				
Pre-Req	uisite:					
Sl. No.						
<u> </u>						
Ζ.						
Content	↓ S		Hrs./w	eek		
Chapte	Name of the Topic		Hours	Marks		
r 01	Unit 1: Introduction to core concepts	and technologies: Introduction,	6	10		
	-	ocess, data science toolkit, Types				

of data, Example applications

Data collection and management: Introduction, Sources of

data, Data collection and APIs, Exploring and fixing data, Data

12

7

02

03	storage and	l management, Using mi	ultiple data sources					
		sis: Introduction, Termi			10	12		
		n to statistics, Central to						
	distribution							
		rithmetic, Samples/CLT, Basic machine learning algorithms, inear regression, SVM, Naive Bayes.						
0.4					11	1(
04		Data visualisation: Introduction, Types of data visualisation,1116Data for visualisation: Data types, Data encodings, Retinal1116						
		, Mapping variables to encodings, Visual encodings.						
05			f Data Science, Technologies for visualisation, 7 15					
00	Bokeh (Pyt	-	, , , ,					
06			in various data collection and analysis 7 5					
	techniques,	s, various visualization techniques, application						
		nt methods of used in da	ata science.					
	Sub Total:				48	70		
		essment Examination & Pr	reparation of Semester			30		
	Examination	l				100		
Dractics	l: Based on T	haarw				100		
		-						
Skills to	be developed	1:						
List of P	ractical: Sl. No	o. 1& 2 compulsory & at	least three from the re	st)				
Aasi	• • • • • • •							
Assignm	ients:							
List of B	ooks							
Text Bo								
	f Author	Title of the Book	Edition/ISSN/ISBN	Nar	ne of tl	1e		
					olisher			
Deferrer	as Da alas							
	ce Books:	Daine Data Cairman						
	Cathy O'Neil Thel Schutt.	Doing Data Science,	Straight Talk From The Frontline.	O'R	eilly.			
апи кас	ure	Mining of Massive	v2.1	Car	nbridg			
2 I	ure	-	V2.1			0		
,	ak.	Datasets			-			
Leskove	•	Datasets.			-	e 7 Press.		
Leskove AnandR	ek, ajaraman rey Ullman.	Datasets.			-			
, Leskove AnandR	ajaraman	Datasets.			-			
Leskove AnandR and Jeff	ajaraman rey Ullman.				-			
Leskove AnandR and Jeff List of e	ajaraman rey Ullman.	Datasets. paratus for laboratory e	experiments:		-			
Leskove AnandR and Jeffi List of e	ajaraman rey Ullman.		experiments:		-			
Leskove AnandR and Jeffi List of e Sl. No. 1.	ajaraman rey Ullman.		experiments:		-			
Leskove AnandR and Jeffi List of ee Sl. No. 1. 2.	ajaraman rey Ullman.		experiments:		-			
Leskove AnandR and Jeff List of et Sl. No. 1. 2. 3.	ajaraman rey Ullman.		experiments:		-			
Leskove AnandR and Jeffi List of e Sl. No. 1. 2. 3. 4.	ajaraman rey Ullman.		experiments:		-			
Leskove AnandR and Jeffi List of ee Sl. No. 1. 2. 3. 4. 5.	ajaraman rey Ullman. quipment/ap	paratus for laboratory e		Uni	iversity	Press.		
Leskove AnandR and Jeffi List of ee Sl. No. 1. 2. 3. 4. 5.	ajaraman rey Ullman. quipment/ap	paratus for laboratory e	experiments:	Uni	-	Press.		

		correct ans	wer)					
		No of question to be set	Total Marks	No of question to be set	To answer	Marl ques	ks per stion	Total Marks
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
par • Spe be	rt. ecific instructio given on top o	on to the stud f the question	ents to mainta	in the order	ect answer are to in answering ob			
Group	ion Scheme	Chapter	Marks of		Question to l	10	Ωυρεί	tion to be
uroup		chapter	questio		set		answered	
Α		ALL	1		10		10	
В		ALL	5		5		3	
С		ALL	15		5		3	
			l Sessional e		n:			
			inuous Evalu	lation				
	xamination	:		1		1		40
Five No of								
Experimer	its							
External Ex	xamination: H	 Examiner-						60
	Note Book(for				10			
	periment(one sting 5 studer				40			
<u></u>	-	Viva voce			10			

	f the Course: M.Tech. in In Wireless Access Technol					
	Course Code:PGIT(IoT)103B, Semester: 1st					
PGIT(Io						
Duratio	n: 48 Hrs.	Maximum Marks: 100+100				
Teachin	g Scheme	Examination Scheme				
Theory:	3	End Semester Exam: 70				
Tutorial	l: 0	Attendance : 5				
Practica	l: 4	Continuous Assessment: 25				
Credit: 3	3 + 2	Practical Sessional internal continuous evaluation: 40				
		Practical Sessional external examination: 60				
Aim:						
Sl. No.						
1.	Interpret basic terms	and characteristics of wireless access networks				
2.	Compare various wire	Compare various wireless access technologies				
3.	Analyze measurement	Analyze measurements of wireless access network parameter				
4.	Assess security issues	in wireless networks				

5.	Choose modulation technique for wireless transmission		
Objective): 		
Sl. No.			
1.	Overview of wireless access technologies, Fixed wireless access Terminal mobility issues regarding wireless access to Internet	network	KS.
2.	Introduction to various Network topologies, hotspot networks, links: point-to-point, point-to-multipoint, multipoint-to-multip		nication
3.	To provide an overview of Standards for most frequently used networks: WPAN, UWB, WLAN, WMAN, WWAN. Network service networks planning, design and installation.	wireless	
4.	To get and insight of Wireless networking security issues, Wire network exploitation and management, software requirements control.		
Pre-Requ	iisite:		
Sl. No.			
1.	Wireless Networks		
2.			
Contents		Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
01	Necessity for wireless terminals connectivity and networking. Wireless networking advantages and disadvantages, Overview of wireless access technologies. Narrowband and broadband networks, fixed and nomadic networks. Wireless local loop (WLL), Public Switched Telephone Network (PSTN) interfaces.	8	10
02	Fixed wireless access (FWA) networks, frequency bands for different networks. Criterions for frequency bands allocation, Network topologies, hotspot networks. Communication links: point-to-point (PTP), point- to-multipoint (PMP), multipoint-to-multipoint (MTM).	8	12
03	Standards for most frequently used wireless access networks: WPAN (802.15, Bluetooth, DECT, IrDA), UWB (Ultra- Wideband), WLAN (802.11, Wi-Fi, HIPERLAN, IrDA), WMAN (802.16, WiMAX, HIPERMAN, HIPERACCESS), WWAN (802.20), Other technologies for broadband wireless access, Local Multipoint Distribution Service (LMDS), Multichannel Multipoint Distribution Servicem (MMDS). Ad Hoc networks, Network services. Services types based on carrier frequency and bandwidth.	10	12
04	Wireless access networks planning, design and installation. Services provision, legislative and technical aspects, Technical and economic factors for network planning: expenses, coverage, link capacity, network complexity and carrier-to-interference ratio (C/I). Base station or access point allocation. Base station and access point equipment. Terminal mobility issues regarding wireless access to Internet. Wireless networking security issues Example of laptop or handheld PC wireless connection in real	9	16

environi	nent. PC wireless interface	equipment					
	access network exploitation						
	requirements, link quality						
	model, wireless network s		et				
	and marketing, service pr						
	application service providers (WDASP) and their role on						
	public telecommunication services market, billing						
systems.		, 0					
06 Recent t	rends in wireless networki	ng and various access		5	5		
	sm,new standards of wirel						
Sub Tota	1:			48	70		
Internal A	Assessment Examination & Pro	eparation of Semester			30		
Examinat	ion						
Total:					100		
Practical: Based or	Theory						
Skills to be develop	oed:						
List of Practical: Sl.	No. 1& 2 compulsory & at	least three from the re	st)				
_							
Assignments:							
List of Books							
Text Books:			-1				
Name of Author	Title of the Book	Edition/ISSN/ISBN	-	ne of th	ie		
			Puł	olisher			
Reference Books:							
1. M. P. Clark	Wireless Access		Joh	n Wiley	/ & Sons,		
				chester	•		
	Networks: Fixed		Chi	cnester			
	Networks: Fixed		Chi	cnester			
	Networks: Fixed Wireless Access and		Chi	cnester			
	Networks: Fixed Wireless Access and WLL networks		Chi	cnester			
	Networks: Fixed Wireless Access and WLL networks Design and Operation				all Unner		
	Networks: Fixed Wireless Access and WLL networks Design and Operation Fixed Broadband		Pre	entice H			
	Networks: Fixed Wireless Access and WLL networks Design and Operation Fixed Broadband Wireless		Pre				
	Networks: Fixed Wireless Access and WLL networks Design and Operation Fixed Broadband Wireless Communications:		Pre	entice H			
	Networks: Fixed Wireless Access and WLL networks Design and Operation Fixed Broadband Wireless Communications: Principles and		Pre	entice H			
2. D. H. Morais	Networks: Fixed Wireless Access and WLL networks Design and Operation Fixed Broadband Wireless Communications: Principles and Practical Applications		Pre Sad	entice H Idle Riv	er		
2. D. H. Morais	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:		Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application and		Pre Sad	entice H Idle Riv	er		
2. D. H. Morais	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixed		Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand Broadband		Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixed		Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais 3. R. Pandya	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices		Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais 3. R. Pandya List of equipment/	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand Broadband	xperiments:	Pre Sad	entice H Idle Riv E Press	er		
 D. H. Morais R. Pandya R. Pandya 	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices	xperiments:	Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais 3. R. Pandya <u>List of equipment/</u> Sl. No. 1.	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices	xperiments:	Pre Sad	entice H Idle Riv E Press			
2. D. H. Morais 3. R. Pandya List of equipment/ Sl. No. 1. 2.	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices	xperiments:	Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais 3. R. Pandya List of equipment/ Sl. No. 1.	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices	xperiments:	Pre Sad	entice H Idle Riv E Press	er		
2. D. H. Morais 3. R. Pandya List of equipment/ Sl. No. 1. 2.	Networks: FixedWireless Access andWLL networksDesign and OperationFixed BroadbandWirelessCommunications:Principles andPractical ApplicationsIntroduction to WLLs:Application andDeployment for Fixedand BroadbandServices	xperiments:	Pre Sad	entice H Idle Riv E Press	er		

End Sem 3hrs.	ester Examina	ation Schen	ne. Max	ximum Mai	rks-70.	Time a	llotted-
Group Unit Objective Questions (MCQ only with the correct answer)				Subjective Questions			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
	e given on top of tion Scheme f	or end sem	ester exami				
Group		Chapter	Marks o		Question to		stion to be
•		AT 1	questio	n	set		wered
A B		ALL ALL	<u> </u>		10 5	<u> </u>	
<u>Б</u> С		ALL	15		<u> </u>	3	
-	tion Scheme f		_	xaminatio	-	5	
	Internal Sess						
Internal	Examination:						40
Five No o	f						
Experime	ents						
Extornal I	Examination: E	vaminor-					60
	o Note Book(for				10		00
-	nts)						
experimen On Spot Ex	nts) kperiment(one f sisting 5 studen				40		

Name of	the Course: M.Tech. in I	nternet of Things			
Subject:	Mobile Applications and Ser	vices			
Course Code:PGIT(IoT)103C,		Semester:1st			
PGIT(Io7	T)193C				
Duration: 48 Hrs.		Maximum Marks: 100+100			
Teaching	g Scheme	Examination Scheme			
Theory: 3	3	End Semester Exam: 70			
Tutorial :	0	Attendance : 5			
Practical	:4	Continuous Assessment: 25			
Credit: 3	+ 2	Practical Sessional internal continuous evaluation: 40			
		Practical Sessional external examination: 60			
Aim:		·			
Sl. No.					
1.	Identify the target platform and users and be able to define and sketch a mobile application				

2.	Understand the fundamentals, frameworks, and development application platforms including iOS, Android, and PhoneGap	lifecycle o	of mobile		
3.	Design and develop a mobile application prototype in one of the platform (challenge project)				
Objective	2:				
Sl. No.					
1.	This course presents the three main mobile platforms and thei namely Android, iOS, and PhoneGap/WebOS.				
2.	It explores emerging technologies and tools used to design and feature-rich mobile applications for smartphones and tablets	impleme	ent		
3.	It also takes into account both the technical constraints relative capacity, processing capacity, display screen, communication is user interface, context and profile		0		
4.					
Pre-Requ	iisite:				
Sl. No.					
1.	Wireless Communication and Mobile Computing				
2.					
Contents		Hrs./w	ook		
Chapter	Name of the Topic	Hours	Marks		
01	Unit 1:Introduction:Introduction to Mobile Computing,	8	10		
02	in Developing Mobile Applications, Mobile Software Engineering, Frameworks and Tools, Generic UI Development Android User More on Uis: VUIs and Mobile Apps, Text-to-Speech	8	12		
	Techniques, Designing the Right UI, Multichannel and Multimodal Uis, . Storing and Retrieving Data, Synchronization and Replication of Mobile Data, Getting the Model Right, Android Storing and Retrieving Data, Working with a Content Provider				
03	Communications via Network and the Web: State Machine, Correct Communications Model, Android Networking and Web, Telephony Deciding Scope of an App, Wireless Connectivity and Mobile Apps, Android Telephony Notifications and Alarms: Performance, Performance and Memory Management, Android Notifications and Alarms, Graphics, Performance and Multithreading, Graphics and UI Performance, Android Graphics	10	12		
04	Putting It All Together : Packaging and Deploying, Performance Best Practices, Android Field Service App, Location Mobility and Location Based Services Android Multimedia: Mobile Agents and Peer-to-Peer Architecture, Android Multimedia	9	16		
05	Multimedia: Mobile Agents and Peer-to-Peer Architecture, Android Multimedia15Platforms and Additional Issues : Development Process, Architecture, Design, Technology Selection, Mobile App Development Hurdles, Testing,815				
	Security and Hacking , Active Transactions, More on Security, Hacking Android				

	mobile computin in IoT	g techniques	in IOT, agen	ts based co	mmunicatio	15		
	Sub Total	:				48	70	
	Internal As Examinati	ernal Assessment Examination & Preparation of Semester 30 amination						
Dractical	Total: : Based on	Theory					100	
		L L						
Skills to l	be develop	ed:						
List of Pr	actical: Sl.	No. 1& 2 comj	oulsory & at	least three	from the res	t)		
Assignm	ents:							
List of Bo	oks							
Text Boo	ks:							
Name of .	Author	Title of the	Book	Edition/I	SSN/ISBN	Name of the Publisher	he	
Reference Wei-Mon		Beginning	Android™	2012		John Wile	v & Conc	
Wei-Men	g Lee	4 Applicat	ion	2012			y & 3011S	
		Developm	ent					
Lint - C			ah a t					
List of eq	uipment/a	pparatus for	aboratory e	experiments	ș:			
Sl. No.								
1.								
1. 2.								
1. 2. 3.								
1. 2. 3. 4. 5.								
1. 2. 3. 4. 5. End Semo	ester Exam	ination Schen	ne. Max	ximum Mar	ks-70.	Time all	lotted-	
1. 2. 3. 4. 5.	ester Exam Unit	Objective (MCQ only	Questions with the	ximum Mar		Time all e Questions	lotted-	
1. 2. 3. 4. 5. End Seme 3hrs.		Objective (MCQ only correct ans	Questions with the wer)		Subjective	e Questions		
1. 2. 3. 4. 5. End Seme 3hrs.		Objective (MCQ only	Questions with the	ximum Mar			lotted- Total Marks	
1. 2. 3. 4. 5. End Seme 3hrs.		Objective (MCQ only correct ans No of question	Questions with the wer) Total	No of question	Subjective	Questions Marks per	Total	
1. 2. 3. 4. 5. End Semo 3hrs. Group	Unit	Objective (MCQ only correct ans No of question to be set	Questions with the wer) Total Marks	No of question	Subjective	Questions Marks per	Total	
1. 2. 3. 4. 5. End Sem 3hrs. Group	Unit ALL	Objective (MCQ only correct ans No of question to be set	Questions with the wer) Total Marks	No of question to be set	Subjective To answer	e Questions Marks per question	Total Marks	

be given on top o	of the quest	ion paper.				
Examination Scheme	for end s	emester exami	nation:			
Group	Chapter	· Marks o questio		Question to be set	Question to be answered	
Α	ALL	1		10	10	
В	ALL	5		5	3	
С	ALL	15		5	3	
Examination Scheme	for Pract	ical Sessional e	xaminati	ion:		
Practical Internal Ses	sional Co	ntinuous Evalu	ation			
Internal Examination					40	
Five No of						
Experiments						
External Examination:	Examiner-			·	60	
Signed Lab Note Book(for experiments)	five	10				
On Spot Experiment(one group consisting 5 studer				40		
,	Viva voce			10		

Namasf	the Course M Tech to I	atomot of Things
	the Course: M.Tech. in In Machine learning	iternet of Things
	Code:PGIT(IoT)104A,	Semester: 1st
PGIT(Io		Semester: 1st
Duration: 48 Hrs.		Maximum Marks: 100+100
Teaching Scheme		Examination Scheme
Theory: 3		End Semester Exam: 70
Tutorial		Attendance : 5
Practical		Continuous Assessment: 25
Credit: 3		Practical Sessional internal continuous evaluation: 40
		Practical Sessional external examination: 60
Aim:		
Sl. No.		
1.	Extract features that various IOT applicati	can be used for a particular machine learning approach in ons.
2.	-	trast pros and cons of various machine learning techniques of when to apply a particular machine learning approach.
3.	To mathematically an paradigms.	nalyse various machine learning approaches and
Objectiv	e:	
Sl. No.		
1.		of how to learn patterns and concepts from data without rammed in various IOT nodes.
2.	To design and analys	e various machine learning algorithms and techniques ok focusing on recent advances.
3.		nd unsupervised learning paradigms of machine learning.
4.		ning technique and various feature extraction strategies.

Pre-Requi	isite:		
Sl. No.			
1.	Algorithm and Data Structure		
2.			
Contents	·	Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
01	 Unit 1: Supervised Learning (Regression/Classification) Basic methods: Distance-based methods, Nearest-Neighbours, Decision Trees, Nave Bayes Linear models: Linear Regression, Logistic Regression, Generalized Linear Models Support Vector Machines, Nonlinearity and Kernel Methods Beyond Binary Classification: Multi-class/Structured Outputs, Ranking 	10	10
02	 Unsupervised Learning Clustering: K-means/Kernel K-means Dimensionality Reduction: PCA and kernel PCA Matrix Factorization and Matrix Completion Generative Models (mixture models and latent factor models) 	7	12
03	Evaluating Machine Learning algorithms and Model Selection, Introduction to Statistical Learning Theory, Ensemble Methods (Boosting, Bagging, Random Forests)	6	12
04	Sparse Modeling and Estimation, Modeling Sequence/Time- Series Data, Deep Learning and Feature Representation Learning	10	16
05	Scalable Machine Learning (Online and Distributed Learning) A selection from some other advanced topics, e.g., Semi- supervised Learning, Active Learning, Reinforcement Learning, Inference in Graphical Models, Introduction to Bayesian Learning and Inference	10	15
06	Recent trends classification applications.in various methods for learning techniques IoT applications of machine learning Various models for and IoT	5	5
	Sub Total.	40	70
	Sub Total:	48	70
	Internal Assessment Examination & Preparation of Semester Examination		30
	Total:		100

Skills to be developed	:						
List of Practical: Sl. No	. 1& 2 comp	oulsory & at	least thre	e from the res	st)		
Assignments:							
List of Books Text Books:							
Name of Author	Title of th	ne Book	Edition/	ISSN/ISBN	-	ne of tl lisher	he
Reference Books:	Marah tara 1	· · · · · · · · · ·					0.04.0
1. Kevin Murphy	Machine A Probab Perspecti	ilistic			MIT	' Press	, 2012
2. Trevor Hastie,	The Elem				Spr	inger 2	2009
Robert Tibshirani,	Statistica	l Learning,			-	-	ailable
Jerome Friedman,					onli	ine)	
3.Christopher Bishop,	Pattern R	ecognition			Spr	inger, 2	2007.
	and Mach						
	Learning	,					
List of equipment/app	aratus for l	aboratory e		ts:			
Sl. No.		ubbilutory c	Aperimen				
1.							
2.							
3.							
<u>4.</u> 5.							
End Semester Examina 3hrs.	ation Schem	ie. Max	kimum Ma	rks-70.	Т	ime all	otted-
Group Unit	Objective (MCQ only v	•		Subjective	e Que	stions	
	correct answ	wer)			1		
	No of question to be set	Total Marks	No of question to be set	To answer		ks per stion	Total Marks
A ALL	10	10					
B ALL			5	3	5		70
C ALL			5	3	15		
Only multiple cho	ice type quest	tion (MCQ) wi	th one corre	ct answer are to	be set	t in the o	objective
part.Specific instruction	on to the stude	onts to mainta	in the order	in answering of	hiactiv	o guosti	ons should
• Specific first dede be given on top of			in the of del	m answering 0	ojecuv	c questi	ons should
Examination Scheme f			nation.				
0				1			
Group	for end seme Chapter	Marks o questio	of each	Question to set	be	Quest	tion to be

В	ALL	5	5		3						
С	ALL	15	5		3						
Examination Scheme for	Examination Scheme for Practical Sessional examination:										
Practical Internal Sessional Continuous Evaluation											
Internal Examination:						40					
Five No of											
Experiments											
External Examination: Ex	aminer-					60					
Signed Lab Note Book(for f	ive			10							
experiments)											
On Spot Experiment(one for each 40											
group consisting 5 students	s)										
Vi	va voce			10							

Name of	the Course: M.Tech. in Ir	nternet of Things			
	Smart Sensors and Intern	0			
	Code:PGIT(IoT)104B,	Semester: 1st			
PGIT(Io					
	n: 48 Hrs.	Maximum Marks: 100+100			
Teaching	g Scheme	Examination Scheme			
Theory:		End Semester Exam: 70			
Tutorial	: 0	Attendance : 5			
Practica	l: 4	Continuous Assessment: 25			
Credit: 3	+ 2	Practical Sessional internal continuous evaluation: 40			
		Practical Sessional external examination: 60			
Aim:					
Sl. No.					
1.	Understand the vision	of IoT from a global context.			
2.	Determine the Market perspective of IoT.				
3.	Use of Devices, Gatewa	ys and Data Management in IoT.			
4.	Application of IoT in In World Design Constrai	ndustrial and Commercial Building Automation and Real- nts.			
5.	Building state of the ar	t architecture in IoT.			
Objectiv	······································				
Sl. No.					
1.	Able to understand the	e application areas of IoT			
2.	Able to realize the revo Networks	olution of Internet in Mobile Devices, Cloud & Sensor			
3.	Able to understand but	ilding blocks of Internet of Things and characteristics			
Pre-Req	uisite:				
Sl. No.					
1.	Wireless Networks				

2.						
Contents	ontents					
Chapter	Name of the	Торіс			Hrs./w Hours	Marks
01	Unit 1: Envi Monitoring:	conmental Parameter Why measurement a		ng	7	10
02	Sensors for Introduction Resistive, Su	Practical Applications 1 of Different Types of urface	erent types; Selection of Sensors such as Capacit Pressure, Humidity, Toxi		8	12
03	Characterist Fractional o sensing app quality Impedance Modelling o	tics rder element: Constan lications such as hum Spectroscopy: Equival	ors: Determination of the nt Phase Impedance for idity, water quality, milk ent circuit of Sensors and t Sensors		11	12
04	Architecture features Fab fabrication: Sensing film Vapor, Anod	e	10	16		
05	Interface Ele for Interfacing	ectronic Circuit for Sm the Smart Sensor, Use	art Sensors and Challen fulness of Silicon Techno of research in smart sen	logy	7	15
06	Recent trend sensors and their archite		day to day life, evolving		5	5
	Sub Total:				48	70
	Internal Asse Examination	ssment Examination & I	Preparation of Semester			30
	Total:					100
Skills to	ents:		t least three from the re	st)		
Text Boo Name of		Title of the Book	Edition/ISSN/ISBN		ne of the	•
				Pul	olisher	

Reference	e Books:							
1. Ya	asuura, H.,	Smart Sen	sors at the			Springer		
			er,			Internati		
Lin, YL.,	Lin, YL.,					Publishir	ıg	
2. Ky	yung, CM.,	Smart Sen	sors and			Springer		
-	H., Liu, Y.,	Systems,	5015 allu			Internati	onal	
Lin, YL	п., ши, г.,	Systems,				Publishir		
,							8	
-	uipment/ap	paratus for	laboratory e	xperimen	ts:			
Sl. No.								
<u> </u>								
<u> </u>								
<u> </u>								
5.								
	ester Examin	ation Scher	ne. Max	kimum Ma	rks-70.	Time a	lotted-	
3hrs.								
Group	Unit	Objective	Questions		Subjective	Questions		
		(MCQ only						
		correct ans	/	N. 6				
		No of question	Total Marks	No of question	To answer	Marks per question	Total Marks	
		to be set	Marks	to be set		question	Marks	
А	ALL	10	10					
В	ALL			5	3	5	70	
D	ALL			5	5	5	70	
С	ALL			5	3	15		
• On	ly multiple ch	oice type ques	tion (MCQ) wit	th one corre	ect answer are to	be set in the	objective	
ра								
				in the order	in answering ob	jective ques	tions should	
	given on top o		i paper. I ester exami i	nation				
Group	tion Scheme	Chapter	Marks o		Question to b		stion to be	
uroup		Chapter	questio		set		vered	
Α		ALL	1		10	10	- ci cu	
В		ALL	5		5	3		
С		ALL	15		5	3		
			l Sessional e		n:			
			i <mark>nuous</mark> Evalu	ation				
	Examination	:		1		1	40	
Five No of								
Experime	nts							
External F	xamination: I	Examiner-					60	
	Note Book(for				10		00	
experimen								
On Spot Ex	periment(one				40			
group cons	sisting 5 studer	,						
		Viva voce			10			

	he Course: M.Tech. in Int					
	ogic And Functional Prog					
Course Code:		Semester: 1st				
PGIT(IoT						
PGIT(IoT Duration:		Maximum Maxixa 100, 100				
		Maximum Marks: 100+100 Examination Scheme				
Teaching						
Theory: 3		End Semester Exam: 70 Attendance : 5				
Tutorial:						
Practical:		Continuous Assessment: 25		1		
Credit: 3 -	+ 2	Practical Sessional internal continu 40	uous eva	luation:		
		Practical Sessional external examination	nation: 6	0		
Aim:						
Sl. No.						
1.	Understanding of the t For IoT.	heory and practice of functional and log	gic progr	amming		
2.	The ability to write fun	nctional and logic programs for nodes in	n IoT.			
3.	The ability to solve pro	blems in and using functional and logi	c progran	nming.		
Objective	:					
Sl. No.	-					
1.	To further the state of the art on the theoretical and practical aspects of developing declarative programming tools in logic programming for IOT data analysis					
2.	To introduce basics of programming for node	functional programming and constrain es in IoT.	t logic			
3.		al concepts used as a theoretical basis rledge and practical experience.	for both			
Pre-Requ	isita					
Sl. No.						
1.	Computer Programmi	ng. Mathematical Logic				
2.		-9,				
Contents			Hrs./w	eek		
Chapter	Name of the Topic		Hours	Marks		
01	Unit 1: Proposition Log Functional Paradigm,	gic: Introduction of logic and	5	10		
	Propositional Concepts, Semantic Table, Problem Solving with Semantic Table					
02	Natural Deduction and of Natural Deduction, S Meta theorems, Impor Properties of AL, Resol	7	12			
03	Introduction to Predic Quantifiers, Functions	ate Logic Objects, Predicates and , First Order Language, Quantifiers, stitution, An Axiomatic System for	9	12		

	Complete	eness, Axiomatic Semant	it and Frogramming			
04	-	c Tableaux & Resolution		1	13	16
	Semantic Tableaux, Instantiation Rules, Problem-solving in Predicate Logic, Normal forms, Herbrand Universes and H-					
	interpre	tation, Resolution, Unific	ation, Resolution as a			
	-	ng Tool, Nondeterminist	-			
	-	ete Data Structure,	5 5			
		order Programming in Pi	olog, Logic Grammars:			
		Clause Grammar, A Gran	0, 0			
05		Eager Evaluation strate			9	15
		luation: Evaluation Orde				
	0	ming with lazy evaluation	-			
		, Delay of unnecessary C		a		
		e, Eager Evaluation and H				
06		ends in logical and func	tional programming,	5	5	5
	predicat					
		ous evaluation strategies	6			
	Sub Tota	= -		4	18	70
		ssessment Examination &	Preparation of Semester			30
	Examinat Total:	1011				100
Practical	Based on T	Theory				
List of Pra	actical: Sl. N	lo. 1& 2 compulsory & at	least three from the res	st)		
Assignme List of Bo	nts: oks	lo. 1& 2 compulsory & at	least three from the res	st)		
Assignme List of Boo Text Bool	nts: oks xs:	lo. 1& 2 compulsory & at Title of the Book	e least three from the res	_	e of th	ne
Assignme List of Boo Text Bool	nts: oks xs:			_		ne
Assignme List of Boo Text Bool	nts: oks xs:			Name		le
Assignme List of Boo Text Bool	nts: oks xs:			Name		ie
Assignme List of Boo Text Bool	nts: oks xs:			Name		10
Assignme List of Boo <u>r</u> Text Boor Name of A	nts: oks s: author			Name		Ie
Assignme List of Book Text Book Name of A Reference	nts: oks cs: outhor e Books:	Title of the Book		Name Publi	isher	
Assignme List of Book Text Book Name of A Reference	nts: oks s: author	Title of the Book		Name Publi	isher	ne lall India.
Assignme List of Book Text Book Name of A Reference 1. Jol	nts: oks s: outhor Books: nn Kelly,	Title of the Book		Name Publi	isher tice-H	
Assignme List of Boo Text Bool Name of A Reference 1. Jol 2. Sa	nts: oks cs: outhor e Books:	Title of the Book "The Essence of Logic", "Logic and Prolog		Name Publi Prent	tice-H	lall India.
Assignme List of Boo Text Bool Name of A Reference 1. Jol 2. Sa	nts: oks s: outhor Books: nn Kelly,	Title of the Book		Name Publi Prent	tice-H	
Assignme List of Boo Text Bool Name of A Reference 1. Jol 2. Sa	nts: oks s: outhor Books: nn Kelly,	Title of the Book "The Essence of Logic", "Logic and Prolog		Name Publi Prent	tice-H	lall India.
Assignme List of Book Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik,	nts: oks s: outhor e Books: nn Kelly, roj	Title of the Book "The Essence of Logic", "Logic and Prolog	Edition/ISSN/ISBN	Name Publi Prent	tice-H	lall India.
Assignme List of Book Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ	nts: oks s: outhor e Books: nn Kelly, roj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming",	Edition/ISSN/ISBN	Name Publi Prent	tice-H	lall India.
Assignme List of Book Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ	nts: oks s: outhor e Books: nn Kelly, roj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming",	Edition/ISSN/ISBN	Name Publi Prent	tice-H	lall India.
Assignme List of Book Text Book Name of A Name of A Reference 1. Jol 2. Sat Kaushik, List of equ Sl. No.	nts: oks s: outhor e Books: nn Kelly, roj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming",	Edition/ISSN/ISBN	Name Publi Prent	tice-H	lall India.
Assignme List of Boo Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ Sl. No. 1. 2. End Seme	nts: oks s: Author e Books: hn Kelly, roj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming", oparatus for laboratory of	Edition/ISSN/ISBN	Name Publi Prent New Inter	tice-H Age natio	lall India.
Assignme List of Boo Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ Sl. No. 1. 2. End Seme 3hrs.	nts: oks s: author Books: n Kelly, roj iipment/aj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming", pparatus for laboratory of nation Scheme. Ma	Edition/ISSN/ISBN	Name Publi Prent New Inter	tice-H Age natio	all India.
Assignme List of Boo Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ Sl. No. 1. 2.	nts: oks s: Author e Books: hn Kelly, roj	Title of the Book Title of the Book The Essence of Logic", Logic and Prolog Programming", Deparatus for laboratory of nation Scheme. Ma Objective Questions	Edition/ISSN/ISBN	Name Publi Prent New Inter	tice-H Age natio	all India.
Assignme List of Boo Text Book Name of A Name of A Reference 1. Jol 2. Sa Kaushik, List of equ Sl. No. 1. 2. End Seme 3hrs.	nts: oks s: author Books: n Kelly, roj iipment/aj	Title of the Book "The Essence of Logic", "Logic and Prolog Programming", pparatus for laboratory of nation Scheme. Ma	Edition/ISSN/ISBN	Name Publi Prent New Inter	tice-H Age natio	all India.

		question to be set	Marks	question to be set		question	ı Marks
A	ALL	10 De set	10	to be set			
11		10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
۲ • S b	part. Specific instructi be given on top o	ion to the stuc of the question	lents to mainta 1 paper.	ain the order	ect answer are to r in answering ob		-
Examina	ation Scheme	for end sen	<mark>lester exam</mark> i	nation:			
Group		Chapter	Marks questic		Question to b set		estion to be swered
Α		ALL	1		10	10	
В		ALL	5		5	3	
С		ALL	15		5	3	
Examina	ation Scheme	for Practica	l Sessional e	examinatio	on:		
Practica	al Internal Ses	sional Cont	inuous Evalı	uation			
Interna	l Examination	1:					40
Five No	of						
Experim	ents						
	Examination:						60
Signed La experime	ab Note Book(fo ents)	r five			10		
On Spot E	Experiment(one	for each			40		
group coi	nsisting 5 stude						
		Viva voce			10		

	ne Course: M.Tech. in In Dject: Research Method	
	de: PGIT(IoT)105	Semester: 1st
Duration :		Maximum Marks:100
Teaching S	Scheme	Examination Scheme
Theory:2		End Semester Exam:70
Tutorial:0		End Semester Exam:70
Practical:0		Attendance : 5
Credit: 2		Continuous Assessment: 25
Aim:		
Sl. No.		
1.	Understand research	problem formulation.
2.	Analyze research rela	ated information
3.	Follow research ethic	:s
Objective:	1	
Sl. No.		
1.	Understand research	problem formulation.

2.	Analyze research related information							
3.	Follow research ethics							
4.	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.							
5.	Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasise the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.							
6.	Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.							
Pre-Requi	site							
Sl. No.								
1.								
2.								
Contents		Hrs./w	eek					
Chapter	Name of the Topic	Hours	Marks					
01	Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis,	6	14					
02	interpretation, Necessary instrumentations. Effective literature studies approaches, analysis Plagiarism, Research ethics	6	10					
03	Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee.	6	14					
04	Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.	6	14					
05	Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.	6	14					
06	New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.	6	4					
	Sub Total:	36	70					
	Internal Assessment Examination & Preparation of Semester	4	30					
	Examination							

Practical: Skills to be List of Prac Assignmen	tical: Sl. No	o. 1& 2 comp	ulsory & at 1	least three f	rom the res	t)	
List of Bool Text Books							
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Reference I	Books:						
1.		"Researchn	nethodolo				
StuartMelv	illeandW	gy: an					
ayneGodda	rd,	introductio	on for				
		science & e	ngineering				
		students'"					
WayneGod		"ResearchM	1ethodolo				
StuartMelv	ille,	gy: An Introductio	on"				
Ranjit Kum	ar,	"Research		2nd Editio	n,		
		Methodolog	gy: A Step				
		by Step Guide for					
		beginners"					
T. Ramappa	a, S.	"Intellectua		2008			
Chand,		Rights Und					
Robert P. M		" Intellectu	-	2016.			
Peter S. Me		Property in					
Mark A. Ler	niey,	Technologi	0 .	10(2			
Asimov,		"Introducti		1962.			
		Design", Pro Hall,	entice				
Mayall,		"Industrial	Design"			McGraw H	ill 1992
Halbert,		"Resisting	Design ;			Taylor & F	
mander e,		Intellectual	1			Ltd ,2007.	i ancis
		Property",	-			20071	
Niebel,		"Product De	esign",			McGraw H	ill, 1974.
List of equi	pment/ap	paratus for la	aboratory ex	xperiments:		1	
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3							
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		No of	Total	No of	To answer	Marks per	Total
		question to be set	Marks	question to be set		question	Marks

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В	All		10	5	3	15		70		
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		choice type que	stion (MCQ)	with one cor	rect answer a	re to be se	t in the ob	jective		
ра								-		
		ction to the stu		ntain the orde	er in answerii	ng objectiv	re questio	ns should		
		p of the questio								
	tion Schem	e for end ser								
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Theory:02	2			nester Exam						
Tutorial:				nester Exam	:70					
Practical:			Attenda	Attendance : 5						
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02	Hedging	Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticising, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts.Introduction					
03	Review o Conclusi	4	10				
04	needed w when wr	s are needed when writin vhen writing an Abstract iting an Introduction,ski f the Literature,	, key skills are needed	g a	4	4	
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06		rases, how to ensure pay bethe first- time submiss		1	4	14	
	Sub Tota	l:			24	70	
	Internal A Examinat	Assessment Examination &	Preparation of Semester		4	30	
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List of B Text Bo	looks oks:		Edition/ISSN/ISBN	-	ne of th blisher	16	
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		question	Marks	question		question	n Marks
		to be set		to be set			
A	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
Only	y multiple cho	ice type questi	on (MCQ) wit	h one correc	t answer are to	be set in	the objective
part	-						
• Spe	cific instructio	on to the stude	nts to maintai	n the order i	in answering ob	jective qu	lestions should
be g	iven on top of	f the question p	oaper.				
Examinati	on Scheme f	or end seme	ster examiı	nation:			
Group		Chapter	Marks o	f each	Question to b	be Qu	uestion to be
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manie ui l	he Course: M.Tech. in Ir	iternet of Things
	isaster management	
	de:PGIT(IoT)106B	Semester: 1st
Duration :		Maximum Marks:100
Teaching	Scheme	Examination Scheme
Theory:02		End Semester Exam:70
Tutorial:0		End Semester Exam:70
Practical:0)	Attendance : 5
Credit: 0		Continuous Assessment: 25
Aim:		
Sl. No.		
1.	learn to demonstrate	a critical understanding of key concepts in disaster risk
	reduction and humar	nitarian response.
2.		the strengths and weaknesses of disaster management g and programming in different countries, particularly
3.		r thecountries they work in
-	their home country o	
Objective	their home country o	
-	their home country o	r thecountries they work in a critical understanding of key concepts in disaster risk
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Contents Chapter 01	Between Hazard And Disasters: Difference And Magnitude. Repercussions Of Dis Loss Of Human And A Natural Disasters: Ea Tsunamis, Floods, Dr Avalanches, Man-ma Nuclear Reactor Mel	l Disaster; Na e, Nature, Typ 4 sasters And H Animal Life, D orthquakes, V oughts And H	es azards: Economic Damag estruction Of Ecosystem. olcanisms, Cyclones,	Hrs./w Hours 5	Marks 15
=	Disaster: Definition, Between Hazard And Disasters: Difference And Magnitude. Repercussions Of Dis Loss Of Human And A Natural Disasters: Ea Tsunamis, Floods, Di Avalanches, Man-ma Nuclear Reactor Mel	l Disaster; Na e, Nature, Typ 4 sasters And H Animal Life, D orthquakes, V oughts And H	tural And Manmade es azards: Economic Damag estruction Of Ecosystem. olcanisms, Cyclones,		15
			trial Accidents, Oil Slicks And Epidemics, War And		
02	Conflicts. Disaster Prone Areas Study Of Seismic Zon Droughts, Landslides And Avalanches; Are Hazards With Specia Diseases And Epiden	es; Areas Pro 5 as Prone To (1 Reference T		5	15
03	Disaster Preparedne Preparedness: Monit Disaster Or Hazard; Risk:Applicat	ss And Mana coring Of Phe Evaluation ionOf Remo Aeteorologica	nomena Triggering A Of ote Sensing, al And Other Agencies,	5	15
04	Risk Assessment Disaster Risk: Conce Reduction, Global Ar	d National Di Assessment, G rning, People	isaster Risk Situation. Jobal Co-Operation In Ris 's Participation In	5 k	10
05	Disaster Mitigation Meaning, Concept An Emerging Trends	d Strategies Iral Mitigatio	Of Disaster Mitigation, n And Non-Structural	4	15
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		xamination & I	Preparation of Semester	4	30
	Total:			28	100
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Referenc	o Doolro								
	Nishith,	"Disaster				Now D	ova	hook	
I. K. Singh AK	•	Manageme Perspective and strateg	es, issues jies "			New Royal book Company.			
Pardeepl (Eds.),		" Disaster M Experience Reflections	sand			India,	Prentice Hall of India, New Delhi.		
3. Go	oel S. L.	Disaster Administra Manageme and Case St	nt Text			Deep &Deep Publication Pvt. Lto New Delhi.			
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C Or pa Sp be Examinat Group A B C Name of t Subject:S Course Co Duration Teaching Theory:02 Tutorial:C Practical:	ALL hly multiple cl art. becific instruct given on top tion Scheme the Course: becific inskrit for ode:PGIT(Ic) circle 24 hours circle 2 becific instruct circle 2 becific i	tion to the stude of the question e for end seme Chapter ALL ALL ALL M.Tech. in Int technical kno	ents to maintai paper. ester examin Marks o question 1 5 15 15 ternet of Thi wledge Semester: Maximum Examinati End Semes Attendance	5 ch one correction the order in the order nation: f each n ings 1st Marks:10 on Schem ter Exam:7 ter Exam:7 e: 5	3 oct answer are to in answering of Question to I set 10 5 5 5	be set in ojective q be Q an 1 3	uesti uesti nsw 0	bjective ons should cion to be	

51. NO.	
1.	Understanding basic Sanskrit language

2.	Ancient Sar	skrit literature about so	cience & technology ca	n be understoo	bd
3.		cal language will help to			<i></i>
-			I O I O		
Objective	9:				
Sl. No.					
1.	To get a wo world	rking knowledge in illus	strious Sanskrit, the sc	ientific langua	ge in the
2.		Sanskrit to improve bra	ain functioning		
3.		Sanskrit to develop the		science & othe	er
4.		the memory power			
5.		ering scholars equipped	with Sanskrit will be a	ble to explore	the
6.	huge know	<u> </u>			
Pre-Requ					
Sl. No.					
1.					
2.					
Contents	1			Hrs./w	eek
Chapter	Name of the	e Topic		Hours	Marks
01		abets in Sanskrit,		8	25
01	-	•		Ŭ	20
		/Present/Future Tense	,		
	• Simj	ple Sentences			
02	01			8	25
02	• Orde	-		8	25
	• Intr	oduction of roots			
	• Tecl	nnical information abou	t Sanskrit Literature		
03		nnical concepts of Engin hanical, Architecture, M	0 .	8	20
	мес	nanical, Architecture, M			
	Sub Total:			24	70
	Internal Ass Examination	essment Examination & Pr	eparation of Semester	4	30
	Total:			28	100
Assignmo List of Bo Text Boo		n theory			
Name of		Title of the Book	Edition/ISSN/ISBN	Name of the	`
Name of A	nution	The of the book		Publisher	•
Referenc	e Books:			1	
	r.Vishwas,	"Abhyaspustakam" –		Bharti Publ	ication
Samskrit	•			New Delhi	
Sansthan					
	blication				

eksha-	rathamaDe	"Teach You Sanskrit"				Vempatik tri, Rasht Sanskrit	Kutumbshas riya
3. Sı	ıresh Soni,	"India's Gl Scientific T				Ocean bo New Delh	oks (P) Ltd. i.
End Sem 3hrs.	ester Examir	ation Schen	ne. Max	kimum Ma	rks-70.	Time a	lotted-
Group	Unit	Objective (MCQ only correct ans			Subjective	e Questions	
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
pa • Sp be	art. pecific instructi e given on top o	on to the stud of the question	ents to mainta paper.	in the order	ct answer are to in answering ol		-
	tion Scheme						
Group		Chapter	Marks of question		Question to set	•	tion to be vered
Α		ALL	1		10	10	
В		ALL	5		5	3	
С		ALL	15		5	3	
	the Course: N Value educati		ternet of Th	ings			
	ode:PGIT(Io	T)106D	Semester:				
	: 36 hours		Maximum		-		
Teaching	g Scheme		Examinati	ion Schem	e		

Duration	1: 30 nours	Maximum Marks:100
Teaching	g Scheme	Examination Scheme
Theory:0	2	End Semester Exam:70
Tutorial:	0	End Semester Exam:70
Practical	:0	Attendance : 5
Credit:0		Continuous Assessment: 25
Aim:	-	
Sl. No.		
1.	Knowledge of self-deve	lopment
2.	Learn the importance of	f Human values
3.	Developing the overall	personality
Objectiv	e:	
Sl. No.		
1.	Understand value of ed	ucation and self- development
2.	Imbibe good values in s	students
3.	Let the should know ab	out the importance of character

Sl. No.			
1.			
2.			
Contents		Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
01	Values and self-development –Social values and	6	10
	individual attitudes. Work ethics, Indian vision of		
	humanism.		
	Moral and non- moral valuation. Standards and		
	principles.		
	Value judgements		
02	Importance of cultivation of values.	6	20
02	 Sense of duty. Devotion, Self-reliance. 	U	20
	• Sense of duty. Devotion, Sen-renance. Confidence, Concentration. Truthfulness,		
	Cleanliness.		
	 Honesty, Humanity. Power of faith, National Unity. 		
	Patriotism.Love for nature,Discipline		
03	• Personality and Behavior Development - Soul and	6	20
	Scientific attitude. Positive Thinking. Integrity and		
	discipline.		
	 Punctuality, Love and Kindness. 		
	Avoid fault Thinking.		
	Free from anger, Dignity of labour.		
	 Universal brotherhood and religious tolerance. 		
	True friendship.		
	Happiness Vs suffering, love for truth.		
	Aware of self-destructive habits.		
	Association and Cooperation.		
	Doing best for saving nature		
04	• Character and Competence –Holy books vs Blind faith.	6	20
01	 Self-management and Good health. 		
	 Science of reincarnation. 		
	Equality, Nonviolence, Humility, Role of Women.		
	 All religions and same message. 		
	 Mind your Mind, Self-control. 		
	 Honesty, Studying effectively 		
	in nonesty, studying encentrely		
	Sub Total:	24	70
	Internal Assessment Examination & Preparation of Semester	4	30
	Examination		
	Total:	28	100

List of Bo Text Boo								
Name of .	Author	Title of the	e Book	Edition/	ISSN/ISBN	-	ne of t olisher	-
Reference	e Books:							
Chakrob	orty, S.K.		d Ethics for ons Theory ce"					iversity w Delhi
F 10					1 50		. 1	
End Sem 3hrs.	ester Exam	ination Schen	ne. Max	ximum Ma	rks-70.	Т	ime al	lotted-
Group	Unit	Objective (MCQ only v correct ans			Subjective	e Que	stions	
		No of question to be set	Total Marks	No of question to be set	To answer		ks per stion	Total Marks
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
pa • Sp	art. Decific instruc		ents to mainta		ect answer are to			-
Examina	tion Schem	e for end sem	ester exami	nation:				
Group		Chapter	Marks o		Question to	be	•	tion to be
			questio	n	set		answ	ered
A		ALL	1		10		10	
B		ALL	5		5		3	
С		ALL	15		5		3	

<u>Semester II</u>

	of the Course: M. Tech. in Interne	0		
	ct: Advanced Computer Architect			
Course Code: PGIT(IoT)201, PGIT(IoT)291		nester: 2 nd		
Duration: 48 Hrs.		Maximum Marks: 100+100		
Teaching Scheme		Examination Scheme		
Theory: 3		End Semester Exam: 70		
Tutorial: 0		Attendance : 5		
Practical: 4		Continuous Assessment: 25		
Credit: 3 + 2		Practical Sessional internal continuous evaluation : 40		
		Practical Sessional external examination: 60		
Aim:				
SI. No.				
1.	Evaluate performance of different	f different architectures with respect to various parameters		
2.	Analyze performance of different ILP techniques			
3.	Identify cache and memory related issues in multi-processors			
Object	tive:			
SI.				
No.				
1.	Understand the micro-architectural design of processors			
2.	Learn about the various techniques used to obtain performance improvement and			
	power savings in current processors			
3.				
Pre-Re	equisite:			
Sl.				
No.				
1.	Computer Architecture			
2.	Distributed Computing			
Contents			Hrs./we	
Chap	Name of the Topic		Hours	Marks
ter				
01	FUNDAMENTALS OF COMPUTE		14	15
	Computer Architecture and Organization-Review, Fundamentals			
	of Computer Design, Technology Trends Cost Performance			
	Analysis (3L)			
	Parallel Processing Architectures- Taxonomy- SISD, MISD,			
	SIMD,MIMD, PRAM models (3L)			
	Data and Resource Dependencies, Program Partitioning and			
	Scheduling, Control Flow vs. Data Flow (3L)			
02	INSTRUCTION LEVEL PARALLELISM		14	20
		gies-Static, Dynamic, Types of Networks (3L)		
	RISC vs. CISC, Memory Hierarch			
	Concepts of Pipelining, Instruct			
	pipelining, arithmetic pipelines	. (4L)		

03	DATA-LEVEL		MI				10	20	
03	Multiprocesso			s. Cache Cohe	erence.		10	20	
	Synchronizati								
	Vector Proces				ompound,				
	Vector Loops,				- ·				
	Algorithms (3								
04	DATA-LEVEL	_					10	15	
	Data Flow Arc		-	iC					
	DFA, VLSI Con Parallel Progr			agos Compil	ors (AI)				
	1 ai anci i i ogi		ueis, Laligua	iges, compil					
	Sub Total:						48	70	
	Internal Assess	ment Examin	ation & Prepa	aration of Sem	nester			30	
	Examination							100	
Dere ett	Total:							100	
Practi	cal: Based on T	neory							
Skille	to be developed	1.							
514113		4.							
List of	Practical: Sl. N	o. 1& 2 comp	oulsory & at	least three f	rom the res	t)			
			-			-			
Assign	iments:								
List of Text B	Books								
	ooks: of Author	Title of the	Rook	Edition/IS	SN /ICDN	Nar	ne of th		
Name	of Author		DUUK		31 1/13D 11	-	lisher	le	
John L	Hennessey	"Computer		Fifth Edition	on, 2012.			ufmann/	
, and Da	•	Architectu			,		sevier,		
Patter	'son,	Quantitativ	ve						
		Approach"	,						
	wang and A.	Computer	_	Internatio	nal	Mc	Graw H	ill	
Briggg	şs	Architectu		Edition,					
D Sim	a, T. fountain,	Parallel Pr Advanced	0			Dog	rson		
P. Kac		Architectu				rea	11 5011		
	ler, J.P.Singh,	Parallel Co				Else	evier		
A.Gup		Architectu							
	ence Books:	1		L.					
Listof	aquinmont /	norotus for 1	abaratar	vnorimente					
Sl. No.	equipment/ap	paratus 10F 1	aboratory e	xperiments:					
<u>31. NO.</u> 1.									
2.									
	emester Examir	ation Schen	ne. Max	imum Mark	s-70.	Т	'ime all	otted-	
3hrs.			··u			•	-ine ull		
Grou	Unit	Objective	Questions		Subjective	Que	stions		
p		(MCQ only v	•	Subjective Qu			_		
		correct answ			1_	Γ.		<u> </u>	
		No of	Total	No of	To answer		ks per	Total	
	1	question	Marks	question		que	stion	Marks	

		to be set		to be set				
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
-			tion (MCO) with	0	e		:	hioatiwo
•	Only multiple cho part.	lice type ques	suon (MCQ) wi	th one corre	ect answer are to	be set	in the o	bjective
•	Specific instruction	on to the stud	ents to mainta	in the order	in answering oh	viective	e questi	ons should
	be given on top o			in the order	in ano wering ob	Jeeure	quese	ono ono unu
Exam	ination Scheme			nation:				
Grou	p	Chapter	Marks o	of each	Question to b	be	Quest	ion to be
-	-	-	questio	n	set		answe	
Α		ALL	1		10		10	
В		ALL	5		5		3	
С		ALL	15		5		3	
Exam	ination Scheme	for Practica	l Sessional e	xaminatio	n:			
Pract	tical Internal Ses	sional Conti	i <mark>nuous Eval</mark> u	ation				
Inter	nal Examination	l		<u>.</u>		-		40
Five N	No of							
Exper	riments							
	nal Examination: E							60
0	l Lab Note Book(for iments)	five			10			
	ot Experiment(one f	for each			40			
	consisting 5 studen				10			
- 1	-	/iva voce			10			

Subject: Wireless and Sensor Networks Course Code: PGIT(IoT)202,		Semester: 2 nd
PGIT(IoT)	· ·	Semester: 2
Duration	1: 48 Hrs.	Maximum Marks: 100+100
Teaching	g Scheme	Examination Scheme
Theory:	3	End Semester Exam: 70
Tutorial	: 0	Attendance : 5
Practical	l: 4	Continuous Assessment: 25
Credit: 3	+ 2	Practical Sessional internal continuous evaluation: 40
		Practical Sessional external examination: 60
Aim:		· · ·
Sl. No.		
1.		lications of wireless sensor networks, describe the concepts, erences underlying the design, implementation, and use of tworks,
2.	Propose, implemen network design iss	nt, and evaluate new ideas for solving wireless sensor ues
3.		

Sl. No.			
1.	Students should be able to list various applications of wireless networks, describe the concepts, protocols, and differences un design		g the
2.	Implementation, and use of wireless sensor networks. Also in evaluate new ideas for solving wireless sensor network design		and
3.		11554651	
_			
Pre-Requi	site:		
Sl. No.			
1.	Computer Architecture		
2.	Networking		
Contents		Hrs./w	
Chapter	Name of the Topic	Hours	Marks
01	Sensor networks overview:	4	10
	Introduction, Applications of WSN, Range of Applications,		
	Designissues		
02	Basic Wireless Sensor Technology:	6	10
	Sensor node architecture, Hardware and Software, Sensor		
	Taxonomy, WSN Operating Environment, Trend		
03	Wireless Transmission Technology and Systems:	6	10
	Introduction, Radio Technology Primer, Propagation &		
	Propagation		
0.4	Impairments, Available Wireless Technologies Fundamentals of MAC Protocols:	(10
04		6	10
	Performance Requirements, Common Protocols, MAC Protocols for WSNs, Schedule-Based Protocols, Random		
	Access-Based Protocols, Sensor-MAC Case Study, Protocol		
	Overview, Periodic Listen and Sleep Operations, Schedule		
	Selection		
	and Coordination, Schedule Synchronization, Adaptive		
	Listening,		
	Access Control and Data Exchange.		
05	Routing Protocols for Wireless Sensor Networks:	6	10
	Routing Challenges and Design Issues in Wireless, Sensor		
	Networks,		
	Network Scale and Time-Varying Characteristics, Resource		
	Constraints, Sensor Applications Data Models, Routing		
	Strategies in Wireless Sensor Networks, WSN Routing		
	Techniques Flooding and its Varianta Sangar Protogola for Information		
	Flooding and its Variants, Sensor Protocols for Information via Negotiation, LowEnergy Adaptive Clustering Hierarchy,		
	Power-Efficient Gathering in Sensor Information Systems,		
	Directed Diffusion, Geographical Routing.		
06	Transport Control Protocols for Wireless Sensor Networks:	6	5
	Transport Protocol Design Issues, Examples of Existing		
	TransportControl Protocols, CODA (Congestion Detection		
	and Avoidance),		
	ESRT (Event-to-Sink Reliable Transport), RMST (Reliable		
	Multisegment Transport), PSFQ (Pump Slowly, Fetch		
	Quickly),		
	GARUDA, ATP (Ad Hoc Transport Protocol), Problems with		
	Transport Control Protocols, Performance of Transport		

		rotocols, Congestion, P			
07		re for Wireless Sensor		6	5
	Introduct Tradition	ion, Network Manager	nent Requirements,		
		-	Simple Network Manager	nont	
		-	ap, Network Managemen		
	Design		-P)	•	
	0	ample of Management	Architecture: MANNA, O	ther	
		lated to Network Mana	gement, Naming,		
	Localizati	-			
08		nce and Traffic Manag gn Issues, MAC Protoco		4	5
		t Protocols, Performan			
		nce Metrics, Basic Mod			
09		systems for Wireless		4	5
	Operating	s System Design Issues	, Examples of MANTIS,		
	SenOS, Ma				
	Sub Total		Dronauction - f Comparis	48	70
	Internal As Examination		& Preparation of Semester		30
	Total:				100
Practical: B	ased on T	heory		I	I
			at least three from the re	st)	
Assignmen List of Book	tical: Sl. No ts: cs		at least three from the re	st)	
Assignmen	tical: Sl. No ts: ts:			st)	f the
Assignmen List of Book Text Books	tical: Sl. No ts: ts:	o. 1& 2 compulsory & a	at least three from the re Edition/ISSN/ISBN		
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S	tical: Sl. No ts: ts: ts: thor Sohraby,	o. 1& 2 compulsory & a		Name o	
Assignmen List of Book Text Books Name of Au [1] Kazem S Daniel Mind	tical: Sl. No ts: cs : thor Sohraby, oli,	o. 1& 2 compulsory & a Title of the Book Wireless Sensor		Name o Publish	
Assignmen List of Book Text Books Name of Au [1] Kazem S Daniel Mind	tical: Sl. No ts: cs : thor Sohraby, oli,	o. 1& 2 compulsory & a		Name o Publish	
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati.	tical: Sl. No ts: ss thor Sohraby, oli,	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network		Name o Publish Wiley	ler
Assignmen List of Book Text Books Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi	tical: Sl. No ts: ss thor Sohraby, oli, ram	o. 1& 2 compulsory & a Title of the Book Wireless Sensor		Name o Publish Wiley	
Assignmen List of Book Text Books Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho	tical: Sl. No ts: cs thor Sohraby, oli, ram g Zhao,	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and		Name o Publish Wiley	ler
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Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub	tical: Sl. No ts: ss thor Sohraby, oli, ram g Zhao, ng, Lang	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks:		Name o Publish Wiley John W	iley & Sons.
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Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mino TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy	tical: Sl. No ts: ss thor Sohraby, oli, ram g Zhao, ng, Lang Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks:		Name o Publish Wiley John W	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited b	tical: Sl. No ts: cs thor Sohraby, oli, ram g Zhao, ng, Lang Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols		Name o Publish Wiley John W	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited b Raghavend [5]Sridhar	tical: Sl. No ts: cs thor Sohraby, oli, ram g Zhao, ng, Lang Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols Wireless sensor networks Fundamentals of		Name o Publish Wiley John W	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mino TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited b Raghavend [5]Sridhar S.Iyengar,	tical: Sl. No ts: ss thor Sohraby, oli, ram g Zhao, ng, Lang Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols Wireless sensor networks Fundamentals of Sensor Network		Name o Publish Wiley John W Pearson	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited to Raghavend [5]Sridhar S.Iyengar, NandanPar	tical: Sl. No ts: cs thor Sohraby, oli, cam g Zhao, ng, Lang Pub py C. S. ra Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols Wireless sensor networks Fundamentals of Sensor Network Programming:		Name o Publish Wiley John W Pearson	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited b Raghavend [5] Sridhar S.Iyengar, NandanPar aran, Vir V.	tical: Sl. No ts: cs thor Sohraby, oli, ram g Zhao, ng, Lang Pub Pub py C. S. ra Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols Wireless sensor networks Fundamentals of Sensor Network Programming: Applications and		Name o Publish Wiley John W Pearson	iley & Sons. n Education
Assignmen List of Book <u>Text Books</u> Name of Au [1] Kazem S Daniel Mine TaiebZnati. [2] Ananthi Swami, Qin YaoWin Ho Tong Pub [3] Murthy [4] Edited to Raghavend [5]Sridhar S.Iyengar, NandanPar	tical: SI. No ts: cs thor Sohraby, oli, ram g Zhao, ng, Lang Pub Pub py C. S. ra Pub	o. 1& 2 compulsory & a Title of the Book Wireless Sensor Network Wireless Sensor Networks Signal Processing and Communications Ad Hoc Wireless Networks: Architectures and Protocols Wireless sensor networks Fundamentals of Sensor Network Programming:		Name o Publish Wiley John W Pearson	iley & Sons. n Education

Reference	Books:									
List of equ	ipment/app	paratus fo	r labo	oratory ex	kperimen	ts:				
Sl. No.										
1.										
2.										
3.										
4.										
5.										
End Semes 3hrs.	ter Examin	ation Sche	eme.	Max	imum Ma	rk	s-70.	T	ime all	otted-
Group	Unit	Objectiv	e Qu	estions			Subjective	Que	stions	
· ·		(MCQ onl					-	•		
		correct ar		<i>,</i>			1			1
		No of		otal	No of		To answer		ks per	Total
		question to be set	M	larks	question to be set			ques	stion	Marks
A	ALL	10 00 300	1	0	to be set					
А	ALL	10	1	0						
В	ALL				5		3	5		70
D					5		5			70
С	ALL				5		3	15		
Only	/ multiple cho	oice type qu	estion	(MCQ) wit	h one corre	ect	answer are to	be set	in the c	objective
part										
					n the order	' in	answering ob	jectiv	e questi	ons should
	iven on top o on Scheme				ation.					
	on scheme		nest			0			0	han ta ha
Group		Chapter		Marks of question			uestion to k	be	-	tion to be
Α		ALL		<u>question</u> 1	1		et 0		answ 10	ereu
B		ALL		5		1 5			3	
Б С		ALL		<u> </u>		5			3	
-	on Scheme		al Se		aminatio	-			5	
	nternal Ses					/11.				
	amination		unu	Jus Evulu						40
Five No of	ummution	•								10
Experiment	ts									
External Ex	amination: E	xaminer-						I		60
Signed Lab N	lote Book(for	five					10			
experiments										
	eriment(one l						40			
group consis	ting 5 studen									
	/iva voce					10				

Name of the Course: M.Tech. in	Internet of Things
Subject: Sensor Networks and Inte	rnet of Things
Course Code: PGIT(IoT)203A,	Semester: 2 nd

PGIT(IoT)2	93A									
Duration :	48 Hrs.	Maximum Marks: 100+100								
Teaching	Scheme	Examination Scheme								
Theory: 3		End Semester Exam: 70								
Tutorial: ()	Attendance : 5								
Practical:	4	Continuous Assessment: 25								
Credit: 3 +	2	Practical Sessional internal continuou	s evalua	tion: 40						
		Practical Sessional external examinati	on: 60							
Aim:										
Sl. No.										
1.	Identify requiremen systems, protocols and	ts from emerging WSN applications on WSN platfor l middleware	rms, comm	unication						
2.	Understand, compare	and evaluate communication and network protoco	ls used in V	WSNs						
3.	Discuss and evaluate r in WSNs	iscuss and evaluate mechanisms and algorithms for time synchronization and localization WSNs								
4.	systems to be used in	ss requirements for the design of security mechanis WSNs	sms and m	iddleware						
Objective:	1									
Sl. No.										
1.	-	verview of various topics related to wireless sensor basis for the emerging internet-of-things.	networks,	which						
2.		ics with relation to various sub disciplines of compo ystems, distributed systems, networking, security a								
3.		reless sensor network (WSN) specific issues such a copology control are addressed as well.	as localizat	ion, time						
Pre-Requi Sl. No. 1. 2.	Site: Wireless Networks									
Contents			Hrs./w							
Chapter	Name of the Topic		Hours	Marks						
01	cities, smart living, learning. Examples Self-Adaptive Syste Systems, Software	applications: Smart transportation, smart , smart energy, smart health, and smart s of research areas include for instance: ems, Cyber Physical Systems, Systems of Architectures and Connectors, Software ig Data and Big Data Mining, Privacy and	8	10						
02	Information View, Relevant architecto Real-World Design Design constraints	nitecture- Introduction, Functional View, Deployment and Operational View, Other ural views. Constraints- Introduction, Technical - hardware, Data representation and raction and remote control.	9	12						
03	Industrial Automat device integration, integrated Web of Things to the Cloud Automation- Introd	tion- Service-oriented architecture-based SOCRADES: realizing the enterprise Things, IMC-AESOP: from the Web of d of Things, Commercial Building duction, Case study: phase one- ng automation today, Case study: phase	9	12						

		mercial building on in the future.				
04	Hardware Systems, Localizati Coverage	Platforms and Energy Fime Synchronization, F on, Medium Access Cont Control, Routing: Trans Middleware, Databases	Positioning and trol, Topology and		10	16
05	IOT Physi Exemplar Device Bo	cal Devices & Endpoints	7	15		
06	Recent tro Automati	ends in sensor network	and IOT architecture,		5	5
	Sub Total				40	70
		ssessment Examination &	Preparation of Semester	T		30
	Examination	Dn				100
Practic	al: Based on T	hoory				100
List of F Assignm List of F Text Bo	nents: Books	o. 1& 2 compulsory & at	least three from the re	st)		
	f Author	Title of the Book	Edition/ISSN/ISBN		ne of th lisher	ie
Referer	ice Books:					
Mandle J., Mitre M.E., Ca Chaouc	r, B., Barja, Campista, gá ová, D.,	Internet of Things. IoT Infrastructures,		Inte	inger ernatio lishing	
M., Gior	dano, S., I., Somov, A.,					
M., Gior Fazio, M	dano, S., I., Somov, A.,					
M., Gior Fazio, M Vieriu, I	'dano, S., 1., Somov, A., RL.,	paratus for laboratory e	experiments:			
M., Gior Fazio, M Vieriu, I	'dano, S., 1., Somov, A., RL.,	paratus for laboratory e	experiments:			
M., Gior Fazio, M Vieriu, 1 List of e	'dano, S., 1., Somov, A., RL.,	paratus for laboratory e	experiments:			
M., Gior Fazio, M Vieriu, I List of e Sl. No.	'dano, S., 1., Somov, A., RL.,	paratus for laboratory e	experiments:			
M., Gior Fazio, M Vieriu, I List of e Sl. No. 1.	'dano, S., 1., Somov, A., RL.,	paratus for laboratory e	experiments:			
M., Gior Fazio, M Vieriu, J List of e Sl. No. 1. 2. 3.	dano, S., 1., Somov, A., RL., equipment/ap		experiments: ximum Marks-70. Subjectiv		ime all	otted-

[(MCO ambr		Γ				
		(MCQ only correct ans						
		No of question	Total Marks	No of question	To answer	Marl ques	ks per	Total Marks
		to be set		to be set		quee		
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
• 0	nly multiple ch	oice type ques	stion (MCQ) wit	h one corre	ect answer are to	be set	in the c	bjective
-	art.							
				in the order	in answering ob	jective	e questi	ons should
	e given on top o	•						
	ation Scheme						-	<u> </u>
Group		Chapter	Marks o		Question to b	be	-	tion to be
_			questio	n	set		answ	ered
Α		ALL	1		10		10	
В		ALL	5		5		3	
С		ALL	15		5		3	
	ation Scheme				n:			
	l Internal Ses		inuous Evalu	ation				
Internal	Examination	:						40
Five No o	of							
Experim	ents							
	Examination: l							60
0	b Note Book(for	five			10			
experime								
	xperiment(one				40			
group cor	isisting 5 studer				10			
		Viva voce			10			

Name of the Course: M	.Tech. in Internet of Things
Subject: Data visualizatio	n
Course Code: PGIT(IoT)2	203B, Semester: 2 nd
PGIT(IoT)293B	
Duration: 48 Hrs.	Maximum Marks: 100+100
Teaching Scheme	Examination Scheme
Theory: 3	End Semester Exam: 70
Tutorial: 0	Attendance : 5
Practical: 4	Continuous Assessment: 25
Credit: 3 + 2	Practical Sessional internal continuous evaluation:
	40
	Practical Sessional external examination: 60
Aim:	
Sl. No.	
	ith the design process to develop visualization methods and
visualizatio	on systems, and methods for their evaluation.
2. Preparatio	n and processing of data, visual mapping and the visualization
3. Have an un	derstanding of large-scale abstract data
Objective:	

visualization and scientific visualization,									
To learn k	ey techniques of the v	isualization process							
A detailed view of visual perception, the visualized data and the actual visualization, interaction and distorting techniques									
isite:									
			Hrs	./week					
Name of th	e Topic		Hou	urs Mark	κs				
			f 8	10					
model, visi	ual mapping, visual ar		8	12					
Classificati visualizati	ion of visualization sy on techniques mislea	ding, Visualization of one,		12					
Visualizati	on of groups, trees, gi	caphs, clusters, networks,	11	16					
Visualizati simulation GIS system	visualization of volumetric data, vector fields, processes and imulations, Visualization of maps, geographic information, GIS systems, collaborative visualizations, Evaluating								
Recent tre	nds in various percep on techniques,		4	5					
Sub Total:			48	70					
		& Preparation of Semester		30					
Total:				100					
e developed:	-	nt least three from the rest	t)						
uthor	Title of the Book	Edition/ISSN/ISBN	Name of	f the					
e Books:									
ARD,	Interactive Data		Natick :	A K Peters	s,				
	visualizati To learn ka A detailed visualizati site: Name of th Introduction data, Gesta Creating vi model, visualizati two and m Visualizati two and m Visualizati software, M Visualizati software, M Visualizati software, M Visualizati simulation GIS system visualizati simulation GIS system visualizati Sub Total: Internal Asse Examination Total: Based on Th e developed: actical: SI. No nts: oks cs: uthor	visualization and scientific visual To learn key techniques of the v A detailed view of visual perception visualization, interaction and disination of visual perception data, Gestalt principles, information distribution of visual perception data, Gestalt principles, information applications. Name of the Topic Introduction of visual perception data, Gestalt principles, information applications. Classification of visualization sy visualization applications. Classification of visualization sy visualization of groups, trees, gr software, Metaphorical visualization of material data visualization of volumetric data simulations, Visualization of material data visualizations Recent trends in various perception visualization from techniques, data structures used in data visualization for the second material data visualization for	visualization and scientific visualization, To learn key techniques of the visualization process A detailed view of visual perception, the visualized data a visualization, interaction and distorting techniques site: Name of the Topic Introduction of visual perception, visual representation o data, Gestalt principles, information overloads. Creating visual representations, visualization reference model, visual mapping, visual analytics, Design of visualization applications. Classification of visualization systems, Interaction and visualization techniques misleading, Visualization of one, two and multi-dimensional data, text and text documents. Visualization of groups, trees, graphs, clusters, networks, software, Metaphorical visualizations, Evaluating visualizations of volumetric data, vector fields, processes a simulations, Visualization of maps, geographic informatio GIS systems, collaborative visualizations, Evaluating visualization techniques, data structures used in data visualization. Sub Total: Internal Assessment Examination & Preparation of Semester Examination Total: Based on Theory e developed: actical: Sl. No. 1& 2 compulsory & at least three from the rest nts: sks s: uthor Title of the Book Edition/ISSN/ISBN Books:	visualization and scientific visualization, To learn key techniques of the visualization process A detailed view of visual perception, the visualized data and the ac visualization, interaction and distorting techniques site: Site: Name of the Topic Name of the Topic Name of the Topic, visual representation of data, Gestalt principles, information overloads. Creating visual representations, visualization reference model, visual mapping, visual analytics, Design of visualization applications. Classification of visualization systems, Interaction and visualization applications. Classification of visualization systems, Interaction and visualization of groups, trees, graphs, clusters, networks, software, Metaphorical visualizations, Evaluating visualization of volumetric data, vector fields, processes and simulations, Visualization of maps, geographic information, GIS systems, collaborative visualization. Sub Total: Based on Theory e developed: ctical: SI. No. 1& 2 compulsory & at least three from the rest) nts: bks s: uthor Title of the Book Edition/ISSN/ISBN Name of Publish Books:	To learn key techniques of the visualization process A detailed view of visual perception, the visualized data and the actual visualization, interaction and distorting techniques Site: site: Impose the transmission of the Topic Name of the Topic Haurs Mare of the Topic Hours Mare of the Topic Introduction of visualization systems, Interaction and visualization of proups, trees, graphs, clusters, networks, software, Metaphorical visualization Simulations, Visualization of mass, geographic information, GIS systems, collaborative visu				

	N, KEIM	Visualization Foundation Techniques Application	15, s, and 15.			Ltd.	
2. E. T	`ufte,	The Visual Quantitativ Informatio	/e			Graphics	Press.
List of oau	inmont/anı	paratus for l	aboratory e	vnorimon	te.		
Sl. No.	ipment/app			xpermen	13.		
1.							
2.							
3.							
4.							
5.							
End Semes 3hrs.	ter Examin	ation Schem	ie. Max	imum Ma	rks-70.	Time al	lotted-
Group	Unit	Objective (MCQ only v correct answ	vith the		Subjective	Questions	
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
part • Spec be g	t. cific instructio given on top o	on to the stude f the question	ents to maintai paper.	n the order	ct answer are to in answering ob		-
F	on Scheme i				0	0	
Examinatio		Chapter	Marks o		Question to b	e Ques	tion to be
Examination Group			auoction			ancu	
Group		ALL	question	n 🛛	set		vered
Group A		ALL ALL	1	n	set 10	10	
Group		ALL ALL ALL		n	set		
Group A B C Examinatio		ALL ALL for Practical	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	
Group A B C Examination Practical In	nternal Sess	ALL ALL for Practical sional Contin	1 5 15	xaminatio	set 10 5 5	10 3	vered
Group A B C Examinatio Practical In Internal Ex		ALL ALL for Practical sional Contin	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	
Group A B C Examinatio Practical In Internal Ex Five No of	nternal Sess xamination:	ALL ALL for Practical sional Contin	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	vered
Group A B C Examinatio Practical In Internal Ex	nternal Sess xamination:	ALL ALL for Practical sional Contin	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	vered
Group A B C Examinatio Practical In Internal Ex Five No of Experiment	nternal Sess xamination:	ALL ALL for Practical sional Contin :	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	vered
Group A B C Examinatio Practical In Internal Ex Five No of Experiment External Ex Signed Lab N	nternal Sess xamination: ts amination: E Note Book(for	ALL ALL for Practical sional Contin : : : : :	1 5 15 Sessional ex	xaminatio	set 10 5 5	10 3	40
Group A B C Examination Practical In Internal Ex Five No of Experiments Signed Lab N experiments	nternal Sess xamination: ts amination: E Note Book(for 5)	ALL ALL for Practical sional Contin : : : : : : : : : : : : :	1 5 15 Sessional ex	xaminatio	set 10 5 5 n: 10 10	10 3	vered 40
Group A B C Examination Practical In Internal Ex Five No of Experiments Signed Lab N experiments On Spot Experiments	nternal Sess xamination: ts amination: E Note Book(for	ALL ALL for Practical sional Contin : : : : : : : : : : : : :	1 5 15 Sessional ex	xaminatio	set 10 5 5 n:	10 3	40

	the Course: M.Tech. in Internet oT Applications and Communic			
		ester: 2 nd		
PGIT(IoT)				
Duration	: 48 Hrs. Max	imum Marks: 100+100		
Teaching	Scheme Exam	nination Scheme		
Theory: 3		Semester Exam: 70		
Tutorial:		ndance : 5		
Practical		tinuous Assessment: 25		
Credit: 3	40	tical Sessional internal continu		
	Prac	ctical Sessional external examin	ation : 6	0
Aim:	1			
Sl. No.				a. —
1.		ological options, platforms and ca	se studio	es of IoT
2.	implementation in home & cit Determine the Market perspe			
2. 3.	Determine the Market perspe			
J.				
Objective	2:			
Sl. No.				
1.	platform, Wireless and wireli	lements of IoT-Mechanical, Electr ne protocols, Mobile to Electronic		
2.		ctronics platform for IoT-Raspber	ry Pi, Arc	luino,
3.	ArmMbedLPC Open source /commercial ent Libellium, Axeda, Cisco fog clo	erprise cloud platform for IoT-Ay	la, iO Bri	dge,
Pre-Requ	vicito.			
Sl. No.				
1.	Computer Networks			
2.				
2.				
Contents			Hrs./w	eek
Chapter	Name of the Topic		Hours	Marks
01	Basic function and architectu	re of a sensor — sensor body,	9	10
		ibration, sensor maintenance,		
	cost and pricing structure, leg	acy and modern sensor		
	network.			
		onics — IoT vs legacy, and open		
	source vs traditional PCB desi			
	Modbus, relay, Zigbee, Zwave,	unication protocols, Protocols:		
	Business driver for sensor de			
		detection, supervision, quality		
	control and process managem			
		Sechniques: manual, automation,		
	infield, primary and secondar			
	implication in IoT	-		
		battery, solar, Witricity, Mobile		
02	and PoE	a of low novements of	0	10
02	Zigbee and Zwave — advantag	ze of low power mesh	9	12

			. Introduction to differe	nt		
	Zigbee chip		h norman anadaf data	ion		
		E. Introduction of Bluet	h power, speed of detect	.10 n ,	ĺ	
	review.	L. Introduction of Bluet	oour venuors & uterr		ĺ	
		cotocole such as Dicono	t and packet structure f	or	ĺ	
			ce RF communication lir		ĺ	
	-	S links, Capacity and th		IK.	ĺ	
			tocols:power consumpti	on	ĺ	
		PER, QoS, LOS	tocois.power consumpti	011,	ĺ	
03	-	A vs ASIC design			9	12
05		g electronics vs Produc	tion electronics OA		, 	12
		for IoT- CE/CSA/UL/IE	÷		ĺ	
			PCB design and its work	flow	ĺ	
			pt of FIT and early mort		ĺ	
			y testing-basic concepts	anty	ĺ	
		source platforms: Ard			ĺ	
	Beaglebone		umo, Raspoerry ri,		ĺ	
04	J	on to Mobile app platfor	rm for IoT: Protoco	ol	8	16
		bileapp for IoT, Mobile				_
			kify Mobile platform for	IoT.	ĺ	
	Axeda,Xive		J	- ,	ĺ	
05	Database in	nplementation for IoT:	Cloud based IoT platfor	ms,	8	15
			censed Database, Availa		ĺ	
	-	- · -	, Omega NovoTech, Ayla		ĺ	
		CISCO M2M platform, A			ĺ	
		atform, Google M2M pla				
06	Recent tren	nds in home automation	n, IoT-locks, Energy		5	5
	optimizatio	on in			ĺ	
	home					
	Sub Total:				48	70
		essment Examination & F	Preparation of Semester		ĺ	30
	Examination	1				100
Dractic		haam			<u>i</u>	100
Practica	al: Based on T	neory				
Skille to	be developed	1.				
SKIIIS LU	be developed	4.				
List of F	Practical: Sl. No	o. 1& 2 compulsory & a	t least three from the re	st)		
2100 01 1				,		
Assignn	nents:					
U						
List of E	Books					
Text Bo		1	1			
Name o	f Author	Title of the Book	Edition/ISSN/ISBN	-	ne of tl	ne
				Put	olisher	
				<u> </u>		
Referen	ice Books:					
	er Hersent,	The Internet of		¥47:1	ov-Dla	clawall
	Boswarthick,	Things: Key		VV 11	ley-Bla	LAWEII.
				1		
	r Elloumi,	Applications and				

		Pro	tocols					
				·				
	luipment/a	pparatus for	laboratory e	xperimen	ts:			
<u>Sl. No.</u> 1.								
2.								
3.								
4.								
5.								
End Sem	ester Exami	ination Schei	me. Max	kimum Ma	rks-70.	Ti	ime all	otted-
3hrs.								
Group	Unit	Objective (MCQ only correct ans			Subjective	Subjective Ques		
		No of	Total	No of	To answer		ks per	Total
		question	Marks	question to be set		ques	tion	Marks
A	ALL	to be set	10	to be set				
Л	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
• Sj	art. pecific instruc		lents to mainta		ect answer are to [.] in answering ob			
Examina	tion Schem	e for end sen	nester exami	nation:				
Group		Chapter	Marks o questio		Question to b set	be	Quest answ	tion to be ered
Α		ALL	1		10		10	
B		ALL	5		5		3	
C	H C 1	ALL	15		5		3	
		e for Practica essional Cont			on:			
	Examinatio		muous Evalu	ativii				40
Five No c		11.						40
Experime								
External	Examination	Examiner-		<u> </u>		·		60
Signed La experime	b Note Book(fe nts)	or five			10			
	xperiment(on sisting 5 stud	ents)			40			
		Viva voce			10			

Course C	ode:PGIT(IoT)204A Ser	nester: 2 nd		
		ximum Marks: 100		
Teaching	g Scheme Exa	mination Scheme		
Theory: 3		l Semester Exam: 70		
Tutorial:		endance: 05		
Practical:	NA Inte	ernal Assessment: 25		
Credit: 3	Pra	ctical Sessional internal continuous ev	valuation	NA
	Pra	ctical Sessional external examination:	NA	
Aim:				
Sl. No.				
1.	Describe big data and use ca	ses from selected business domains	5	
2.	Install, configure, and run Ha	adoop and HDFS		
3.	Perform map-reduce analyti	cs using Hadoop		
4.	Use Hadoop related tools su analytics	ch as HBase, Cassandra, Pig, and Hiv	ve for big	g data
5.	Explain NoSQL big data man	agement		
Objective) 2:			
Sl. No.				
1.	Understand big data for bus	ness intelligence. Learn business c	ase studi	es for big
		osql big data management. Perform		•
2.	<u> </u>			
3.				
Pre-Requ	lisite:			
Sl. No.				
1.	Data Structure			
2.	Computer Architecture and	Organization		
	-	~		
Contents			Hrs./w	eek
Chapter	Name of the Topic		Hours	Marks
01	=	a, convergence of key trends,	8	10
	unstructured data, industry			
	analytics, big data and mark	eting, fraud and big data, risk and		
	big data, credit risk manager	nent, big data and algorithmic		
	trading, big data and healtho	are, big data in medicine,		
	advertising and big data, big	data technologies, introduction		
		nologies, cloud and big data,		
		, Crowd sourcing analytics, inter		
	and trans firewall analytics.			
02		egate data models, aggregates,	8	12
	-	a models, relationships, graph		
	databases, schemaless datab			
		g, master-slave replication, peer-		
	peer replication, sharding a			
	relaxing consistency, version			
	partitioning and combining,	composing map-		
03	reducecalculations.	with Hadoop, scaling out, Hadoop	9	12

	system (HD Hadoop I/C	Hadoop pipes, design of FS), HDFS concepts, Java), data integrity, compres lata structures	interface, data flow,			
04	local tests, a reduce, YAI scheduling,	e workflows, unit tests w anatomy of MapReduce RN, failures in classic Ma shuffle and sort, task ex ats, output formats	job run, classic Map- p-reduce and YARN, jo	b	10	16
05	examples, p	n model and implementa praxis.Cassandra, Cassan Cassandra clients, Hadoo	dra data model, Cassa		7	15
06	Pig Latin sc Hive, data t	pig data model, Pig Latin ripts. ypes and file formats, Hi a manipulation, HiveQL	weQL data definition,	ng	6	5
	Sub Total:				48	70
		essment Examination & Pr	eparation of Semester			30
	Examination	1				100
List of Bo Text Boo Name of	oks:	Title of the Book	Edition/ISSN/ISBN		me of th olisher	16
	ce Books:					_
1. M Minelli, I Chamber AmbigaI	rs, and	"Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses",		Wil	ley, 201	.3.
2. P and M. F	. J. Sadalage owler,	"NoSQL Distilled: A Brief Guide to the Emerging World ofPolyglot Persistence",			dison-V ofessior	Vesley al, 2012.
			Third Edition,	O'D	aillov	
3. T	'om White,	"Hadoop: The Definitive Guide".			emey,	2012.
	ric	Definitive Guide", "Hadoop Operations",			Reilley,	

6.	Lars George,	"HBase: T Definitive				O'Reille	y, 2011.
7.	Eben Hewitt,	"Cassandi	•			O'Reille	y, 2010.
		Definitive	e Guide",			-	
8.	Alan Gates,	"Program	ming Pig",			O'Reilley	y, 2011.
Listof	equipment/ap	naratus for	laboratory	vnorimon	te		
Sl. No.	equipment/ap	paratus ior	laboratory e	xpermen			
1.							
2.							
3.							
4.							
5.							
End Se 3hrs.	emester Examir	ation Sche	me. Max	ximum Ma	rks-70.	Time a	allotted-
Group	Unit	Objective (MCQ only correct and			Subjective	e Question	S
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
• • Exami	Only multiple che part. Specific instructi be given on top o nation Scheme	on to the stud of the questio	dents to mainta n paper.	in the order			-
Group		Chapter	Marks		Question to	be Que	stion to be
F			questio		set		wered
Α		ALL	1		10	10	
В		ALL	5		5	3	
С		ALL	15		5	3	
	nation Scheme				on:		
	cal Internal Ses		tinuous Evalu	ation			
	al Examination			1		1	40
Five No							
Experi	ments						
Externa	al Examination: I	Examiner-					60
	Lab Note Book(for						
experin	,						
	Experiment(one						
group c	onsisting 5 studer	-					
		Viva voce					

	le:PGIT(IoT)204B Semeste			
Duration: 4	48 Hours Maximu	ım Marks: 100		
Teaching S	cheme Examin	ation Scheme		
Theory: 3	End Sem	iester Exam: 70		
Tutorial: 0	Attenda	nce: 05		
Practical: N	A Internal	Assessment: 25		
Credit: 3	Practica	l Sessional internal continuous e	valuation	: NA
	Practica	l Sessional external examination	NA	
Aim:	I			
Sl. No.				
1.	To have an understanding of ba	sics of security and issues rela	ted to it.	
2.	Understanding of biometric tec			ed in
	today's world.	1	<i>y</i> • •	
3.	Security issues in web and how	to tackle them.		
4 .	Learn mechanisms for transpor			
Objective:				
Sl. No.				
1.	To learn the basics of security a	nd various types of security is	51105	
1.	i o icai ii die basies di secui ity d	na various types of security is	Jucs.	
2.	To study different cryptography	y techniques available and var		rity
2.	attacks.	y techniques available and vai	ious secu	li ity
3.	Explore network security and h	ow they are implemented in re	al world	
3. 4.	To get an insight of various issu			•
т.	authentication.	les of web security and biomet	.110	
Pre-Requis				
Sl. No.	site.			
1.	Computer Networks,			
1. 2.	Web Programming			
2.	webriogramming			
Contents			Hrs./w	oolz
Chapter	Name of the Topic		Hours	Marks
-		manhy Evamples DCA DEC		
01	Data security: Review of crypto ECC.		6	10
02	Authentication, non-repudiatio	n and message integrity.	9	12
	Digital signatures and			
	certificates. Protocols using cry			
	Kerberos). Attacks on protocols			
03	Network security: Firewalls, Pr	oxy-Servers, Network	9	12
	intrusion detection.			
	Transport security: Mechanism			
04	Web security – SQL injection, XS		11	16
04	huffer overflow Malware types	and case studies. Access		
04				
	Control, firewalls and host/net			
	Control, firewalls and host/netw Other topics: Biometric authent		8	15
	Control, firewalls and host/netv Other topics: Biometric authent (ex. SET), Smart	tication, Secure E-Commerce	8	15
05	Control, firewalls and host/netw Other topics: Biometric authent (ex. SET), Smart Cards, Security in Wireless Com	tication, Secure E-Commerce munication.		
05	Control, firewalls and host/netw Other topics: Biometric authent (ex. SET), Smart Cards, Security in Wireless Com Recent trends in IOT security, I	tication, Secure E-Commerce munication.	5	5
05	Control, firewalls and host/netw Other topics: Biometric authent (ex. SET), Smart Cards, Security in Wireless Com Recent trends in IOT security, II Sub Total:	tication, Secure E-Commerce munication. DS and Biometric.		
05 06	Control, firewalls and host/netw Other topics: Biometric authent (ex. SET), Smart Cards, Security in Wireless Com Recent trends in IOT security, II Sub Total: Internal Assessment Examination	tication, Secure E-Commerce munication. DS and Biometric.	5	5
05	Control, firewalls and host/netw Other topics: Biometric authent (ex. SET), Smart Cards, Security in Wireless Com Recent trends in IOT security, II Sub Total:	tication, Secure E-Commerce munication. DS and Biometric.	5	5 70

List of Pra	ctical: Sl. No	o. 1& 2 comp	oulsory & at	least thre	e from the re	st)		
Assignmer	nts:							
List of Boo Text Book								
Name of A	uthor	Title of the	Book	Edition/	ISSN/ISBN/		ne of tl olisher	10
Reference	Books:			1				
1. W. Cheswick Bellovin.		Firewalls a Internet Se				Add 199	lison V 94.	Vesley,
	Stallings.	Cryptogram Network Se	-			Pre	entice H	lall, 1999.
3. B.S	chneier.	Applied Cryptograp	ohy.			Wil	ey, 199	99.
List of ogu	inmont/an	paratus for l	aboratoryo	vnorimon	tei			
Sl. No.	ipment/ ap	paratus ior i	aboratorye	xpermen				
1.								
2.								
3.								
<u>4.</u> 5.								
	ter Examin	ation Schem	ie. Max	kimum Ma	rks-70.	Т	'ime all	otted-
Group	Unit	Objective (MCQ only v	Questions with the		Subjectiv	e Que	stions	
		correct answ		N. C			1	m · 1
		No of question to be set	Total Marks	No of question to be set	To answer		ks per stion	Total Marks
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
Only	y multiple ch	oice type quest	tion (MCQ) wit	th one corre	ect answer are to	o be se	t in the o	bjective
	cific instructi	on to the stude of the question		in the order	in answering o	bjectiv	re questi	ons should
		for end sem		nation:				
Group		Chapter	Marks o		Question to	be	-	tion to be
			questio	n	set		answ	ered
A		ALL	<u>1</u>		10		10	
B C		ALL ALL	5 15		5 5		3	
	on Scheme	ALL		vaminatio			э	
- mannati	si seneme	ucuida		ammatio				

Practical Internal Sessional Co		uation
Internal Examination:	40	
Five No of		
Experiments		
External Examination: Examiner	60	
Signed Lab Note Book(for five experiments)		
On Spot Experiment(one for each		
group consisting 5 students)		
Viva voce		

	dvanced Machine Lear de:PGIT(IoT)204C	Semester: 2 nd		
Duration:		Maximum Marks: 100		
Teaching		Examination Scheme		
Theory: 3		End Semester Exam: 70		
Tutorial: 0		Attendance: 05		
Practical: I		Internal Assessment: 25		
Credit: 3		Practical Sessional internal continuous	evaluation	: NA
		Practical Sessional external examination	n: NA	
Aim:				
Sl. No.				
1.	Key concepts, tools a	and approaches for pattern recognition	on comple	x data
	sets		-	
2.	Kernel methods for	handling high dimensional and non-line	ar pattern	s
		rithms such as Support Vector Machines		
	networks			
3.	Solve real-world ma	chine learning tasks: from data to infere	ence	
4.	Theoretical concept	s and the motivations behind different l	earning	
	frameworks			
Objective	1			
Sl. No.				
1.	To introduce key co	ncepts in pattern recognition and machi	ne learnin	g;
		gorithms for classification, regression, c	lustering a	nd
	probabilistic modeli			
2.		v of the general issues arising in the app		
		sing data, common terms used, and com	mon errors	s made if
	applied incorrectly.			
3.		olbox of techniques that can be immedi		ed to rea
	world problems, or	used as a basis for future research into t	he topic.	
Dece D	 • - • • -			
Pre-Requi	isite:			
Sl. No.	Machina Lagradia -			
1.	Machine Learning,			
2.	Probability Theory			
Contents			II	<u>a al</u> r
Contents	Name of the Topic		Hrs./w	
	I Name of the Tonic		Hours	Marks
Chapter 01		vised/Unsupervised Learning, Loss	8	10

M. Bishop 2. Jol Taylor an NelloCris	nristopher o, hn Shawe- id tianini,	Pattern Recognition and Machine Learning. Kernel Methods for Pattern Analysis. paratus for laboratory	experiments:	Pub	lisher	
1. Ch M. Bishop 2. Jol Γaylor an NelloCrist List of equ Sl. No.	nristopher o, hn Shawe- id tianini,	and Machine Learning. Kernel Methods for Pattern Analysis.	experiments:	Pub	lisher	
L. Ch M. Bishop 2. Jol Faylor an NelloCrist	nristopher o, hn Shawe- id tianini,	and Machine Learning. Kernel Methods for Pattern Analysis.	experiments:	Pub	lisher	
. Ch 1. Bishop 2. Jol Caylor an	nristopher o, hn Shawe- id	and Machine Learning. Kernel Methods for		Pub	lisher	
. Ch 1. Bishop 2. Jol Caylor an	nristopher o, hn Shawe- id	and Machine Learning. Kernel Methods for		Pub	lisher	
l. Ch A. Bishop	ristopher),	and Machine Learning.		Pub	lisher	1e
L. Ch	ristopher			Pub	lisher	1e
Reference	e Books:			Pub	lisher	1e
				Pub	lisher	10
				Pub	lisher	16
					1	ıe
Fext Bool Name of A	-	Title of the Book	Edition/ISSN/ISBN	-	1e of th	
Assignme List of Bo	ents: oks	· · · · · · · · · · · · · · · · · · ·		,		
	e developed actical: Sl. No		t least three from the re	st)		
Practical:	Total:					100
	Examinatio		Preparation of Semester			30
	Sub Total	1		**	40	70
)6	algorithm	l,	unsupervised learning e selection and extractio	n	5	5
	areas - Se	curity - Business - Scier		ion		
05	Filter Met		oaches - Embedded meth		9	15
04		nality Reduction - CCA,	LDA, ICA, NMF - Canonic	al	10	16
	Expectati	robabilistic Latent Sem on-Maximisation (EM) :				
	Bayesian		lief Networks and Graph	ical	8	12
)3	Kernel PC	, Kernel Ridge Regressi A, Latent Semantic Ana	lysis			- 12
)3		ethods for non-linear d	ata, Support Vector		8	12
02	Kernel Me		osting, Random Forest			

Group	Unit	Objective (MCQ only correct ans	wer)		Subjective	Ques	stions	
		No of question to be set	Total Marks	No of question to be set	To answer	Mark ques	ks per tion	Total Marks
А	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
pa • Sp be	rt. ecific instructi given on top o	ion to the stud of the questior	ents to mainta	in the order	ct answer are to in answering of			
Group	ion seneme	Chapter	Marks o		Question to l	be	Ouest	tion to be
F			questio		set		answ	
Α		ALL	1		10		10	
В		ALL	5		5		3	
С		ALL	15		5		3	
			l Sessional e		n:			
			inuous Evalu	ation				
	Examination	1:		1		1		40
Five No of								
Experime	nts							
External E	xamination:]	Examiner-						60
	Note Book(for							
experiment								
	periment(one							
group cons	isting 5 stude							
		Viva voce						

	Name of the Course: M.Tech. in Internet of Things Subject:Constitution of India						
Course Code:PGIT(IoT)205A Semester: 2 nd							
Duration	n: 24 Hours	Maximum Marks: 100					
Teaching	g Scheme	Examination Scheme					
Theory:0	2	End Semester Exam: 70					
Tutorial:		Attendance: 5					
Practical:		Continuous Assessment: 25					
Credit: 0							
Aim:							
Sl. No.							
1.	8	e demand for civil rights in India for the bulk of Indians					
	before the arrival of Gau	ndhi in Indian politics.					
2.		origins of the framework of argument that informed the					
	conceptualization of social reforms leading to revolution in India.						
3.	Discuss the circumstances surrounding the foundation of the Congress Socialist						
		adership of Jawaharlal Nehru and the eventual failure of					
	the proposal of direct el	ections through adult suffrage in the Indian Constitution					

4.	Discuss the passage of the Hindu Code Bill of 1956.							
Objective	1 C							
Sl. No.								
1.	Understand the premises informing the twin themes of liberty	and free	lom from					
	a civil rights perspective							
2.	To address the growth of Indian opinion regarding modern Indian intellectuals'							
<i>2</i> .	constitutional role and entitlement to civil and economic rights							
	emergence of nationhood in the early years of Indian nationalis		as the					
3.	To address the role of socialism in India after the commenceme		1					
01	BolshevikRevolution in 1917 and initial drafting of the Indian C							
		onstituti						
Pre-Requ	lisite:							
Sl. No.								
1.								
2.								
Contents	1	Hrs./w	eek					
Chapter	Name of the Topic	Hours	Marks					
01	History of Making of the Indian Constitution:	4	14					
	HistoryDrafting Committee, (Composition & Working)							
02	Philosophy of the Indian Constitution:	4	14					
-	Preamble Salient Features							
03	Contours of Constitutional Rights & Duties:	4	14					
	Fundamental Rights							
	Right to Equality							
	Right to Freedom							
	Right against Exploitation							
	Right to Freedom of Religion							
	Cultural and Educational Rights							
	Right to Constitutional Remedies							
	Directive Principles of State Policy							
	• Fundamental Duties.							
04	Organs of Governance:	4	14					
	• Parliament							
	Composition							
	Qualifications and Disqualifications							
	Powers and Functions							
	Executive							
	• President							
	• Governor							
	Council of Ministers							
	 Judiciary, Appointment and Transfer of Judges, 							
	Qualifications							
	Powers and Functions							
05	Local Administration:	4	4					
	District's Administration head: Role and Importance,							
	Municipalities: Introduction, Mayor and role of Elected							
	Representative CEO of Municipal Corporation.							
	 Pachayati raj: Introduction, PRI: ZilaPachayat. 							
	• Elected officials and their roles, CEO ZilaPachayat: Position							
	and role.							
	Block level: Organizational Hierarchy (Different							
	departments),							
	Village level: Role of Elected and Appointed officials,							

	• Imp	ortance of gra	ass root dem	ocracy				
06	Chie Stat	ommission: ction Commiss of Election Con e Election Con itute and Bod	mmissioner a mmission: Re	and Election ole and Func	Commissione tioning.	4 ers.	10	
07								
	Sub Total:					24	70	
		essment Exan	nination & P	reparation of	Semester	4	30	
	Examination	n				20	100	
Practica	Total:					28	100	
List of B Text Boo Name of	ooks oks:	Title of the	Book	Edition/IS	SSN/ISBN	Name of t		
						Publisher	•	
	ce Books:							
Constitu	The Ition of 950 (Bare					Governmo Publicatio	overnment Publication.	
2. E	Dr. S. N. Busi, Ambedkar	framing of Constitutio		1st Editio	n, 2015.			
	A. P. Jain,	Indian Con Law,		7th Edn.,		Lexis Nex	·	
4. E).D. Basu,	Introductio Constitutio				Lexis Nex	18, 2015.	
List of e	quipment/ap			xperiments	:			
Sl. No.			-	-				
1.								
<u>2.</u> 3.								
<u> </u>								
5.								
End Sem 3hrs.	iester Examii	nation Schem	ne. Max	ximum Marl	ks-70.	Time al	lotted-	
Group	Unit	Objective QuestionsSubjective Questions(MCQ only with the correct answer)Subjective Questions			-			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks	
А	ALL	10	10					
В	ALL			5	3	5	70	

С	ALL			5	3	15	
pa: • Sp be	rt. ecific instructi given on top o	on to the stude of the question	nts to mainta paper.	ain the ord	rect answer are to er in answering of		
Examinat	tion Scheme	for end seme	ester exami	ination:	1		
Group		Chapter	Marks questic		Question to b	-	stion to be vered
Α		ALL	1		10	10	
В		ALL	5		5	3	
С		ALL	15		5	3	
Examina	tion Scheme	e for Practica	l Sessiona	l examina	ation:		
Practical	Internal Se	ssional Cont	inuous Eva	aluation			
Internal	Examinatio	n:					
Continuo	us evaluation	1					40
External	Examinatio	on: Examiner	•-				
Signed La	ab Assignme	ents	10				
On Spot I	Experiment		40				
Viva voce	2		10				60

	f the Course: M.Tech. in In Pedagogy Studies	ternet of Things				
	e Code:PGIT(IoT)205B Semester: 2 nd					
Duration: 24 Hours Maximum Marks: 100						
Teachin	g Scheme	Examination Scheme				
Theory:(End Semester Exam: 70				
Tutorial	:0	Attendance : 5				
Practical	1:0	Continuous Assessment: 25				
Credit:0						
Aim:						
Sl. No.						
1.	What pedagogical pract classrooms in developing	tices are being used by teachers in formal and informal ng countries?				
2.	What is the evidence on	the effectiveness of these pedagogical practices, in what				
	Ŧ	nat population of learners?				
3.		tion (curriculum and practicum) and the school ce materials best support effective pedagogy?				
Objectiv	/e:					
Sl. No.						
1.		ce on the review topic to inform programme design and ken by the DfID, other agencies and researchers.				
2.		ce gaps to guide the development.				
3.						
Pre-Req	uisite:					
Sl. No.						
1.						
2.						
Content	S S	Hrs./week				

Chapter	Name of th	Hours	Marks		
01	Introductio	on and Methodology:		4	14
	• Aim				
		and terminology			
		0	llum, Teacher education.		
		ceptual framework, Rese			
		rview of methodology an	5		
02			practices are being used lassrooms in developing	-	14
	countries.	i lui illai allu illiui illai c	lassi oonis ni ueveloping		
		riculum, Teacher educati	on.		
03	Evidonco o	n the effectiveness of p	adagagical practicas	4	14
05		-	h stage: quality assessmen	-	14
	• Met		in stage: quality assessmen		
			curriculum and practicum	N	
			ance materials best suppor	-	
	effective pe		ance materials best suppor		
		ory of change.			
			ody of evidence for effectiv	ve	
	pedagogical	-	ouy of evidence for effective		
		agogic theory and pedage	ogical approaches		
			efs and Pedagogic strategie	es.	
04	Profession	4	14		
	practices a				
	Peer				
	• Sup				
		riculum and assessment			
	• Barı	iers to learning: limited	resources and large class s	sizes	
05		aps and future directio	ons	4	4
		earch design			
		texts			
06	Pedagogy			4	10
	• Tea	cher education			
	• Curi	riculum and assessment			
	• Diss	emination and research	impact.		
					<u> </u>
	Sub Total:			24	70
	Internal Ass Examination	essment Examination & F	Preparation of Semester	4	30
	Total:			28	100
Practical	:			I	•
Assignme	ante				
Based on					
	ala				
List of Bo	OOKS				
List of Bo Text Boo					
	ks:	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher	e

pa		- • •					-
	ly multiple cho	l bice type ques	L tion (MCQ) wit				bjective
C	ALL			5	3	15	/0
B	ALL	10	10	5	3	5	70
A	ALL	to be set 10	10	to be set			
		question	Marks	question	i o aliswer	question	Marks
		correct answ No of	wer) Total	No of	To answer	Marks per	Total
•		(MCQ only v	with the		, -	-	
Group	Unit	Objective	Questions		Subjective	Questions	
End Seme 3hrs.	ester Examin	ation Schen	ne. Max	imum Mark	s-70.	Time all	otted-
		-					
		orking%20 2.pdf.)paper%20				
		ages/resou					
7.		-	nam.org/im				
		campaign.	u i cau				
		preparation count? (2001) Culture and pedagogy: International comparisons in primary education. (2003) Read India: A mass scale, rapid, 'learning to read'					
6. Ch	avan M						
						Diackweii	
5. Al	exander RJ					Oxford an Blackwell	
<u> </u>	anan J., Dr					061	J D 4 -4
		Does teach	er				
	/ J	reading in				272–282.	516,00 (0)
K, Lussier Westbroo	r K, Pryor J, ok I	of basic ma	nd learning oths and			Journal Ed Developm	
	kyeampong	(2013) Imp				Internatio	-
		country re					
		project (M	USTER)				
		education					
		site teache					
К		training in does it cou					
	kyeampong	(2003) Tea				London: D	FID.
		evaluation	,				
		The impor				36 (3): 36	•
2. Ag	grawal M	(2004) Cu reform in s				Journal of Curriculur	
<u> </u>	1 36	primary sc				Leven 1 C	
Hardman	• •	interaction	n in Kenyan			245-261.	
	ckers J,	(2001) Cla	ssroom			Compare,	31 (2):
Reference	e Books [,]						

be given o	n top of the question j	oaper.				
Examination Scl	neme for end seme	ster examin	ation:			
Group	Chapter	Marks of question	each	Question to be set	Question to be answered	
Α	ALL	1		10	10	
В	ALL	5		5	3	
С	ALL	15		5	3	
Examination Sc	cheme for Practica	l Sessional e	xamina	ition:		
Practical Intern	al Sessional Cont	inuous Evalı	lation			
Internal Exami	nation:					
Continuous eval	uation				40	
External Exami	ination: Examiner	•				
Signed Lab Assignments 10						
On Spot Experim	nent	40				
Viva voce 10 60						

	the Course: M.Tech. in In	0				
	tress management by Yoga ode:PGIT(IoT)205C Semester: 2 nd					
Duration						
Teaching		Examination Scheme				
9		Examination Scheme				
Theory:02 Tutorial:0		Attendance : 5				
Practical:	0	Continuous Assessment: 25				
Credit: 0						
A ima.						
Aim: Sl. No.						
1 .	Develop healthy mind in	n a healthy body thus improving social l	naalth			
2.	Improve efficiency	in a neartify body thus improving social i				
3.	mprove enterency					
5.						
Objective	2:					
Sl. No.						
1.	To achieve overall healt	th of body and mind				
2.	To overcome stress	5				
3.						
Pre-Requ	isite:					
Sl. No.						
1.						
2.						
-			1			
Contents						
Chapter	Name of the Topic		Hours	Marks		
01	Definitions of Eight par		8	20		
02	Yam and Niyam. Do`s ar		8	30		
		heya, bramhacharya and aparigraha				
0.2	-	, tapa, swadhyay, ishwarpranidhan	0	20		
03	Asan and Pranayam	and their honefits for mind & hady	8	20		
	i) Various yog poses	s and their benefits for mind & body				

			breathing te	chniques a	nd its effects-			
	Types of pra Sub Total:	anayam					24	70
		essment Exar	nination & Pr	eparation	of Semester		4	30
	Examination			-paradon (28	100
Assignme	ents: Based o	on theory					20	100
		5						
List of Bo								
Text Boo Name of A		Title of the	Dool	Edition /	ICCN /ICDN	No	ne of tl	
	Autior		DUUK	Eurony	ISSN/ISBN		olisher	
Referenc								
•	an Swami asiMandal,	'Yogic Asar Group Tari I"						
2.Swami		"Rajayoga	or			(Pu	blicati	on
Vivekana	nda,	conquering the				-	partme	
AdvaitaA	shrama	Internal Na					kata	2.
1 C		C I	-1					
List of eq Sl. No.	ulpment/ap	paratus for l	aboratory e	xperiment	ts:			
<u>1.</u>								
2.								
3.								
4.								
5.								
End Seme 3hrs.	ester Examir	nation Schen	ne. Max	timum Ma	rks-70.	Т	'ime all	otted-
Group	Unit	Objective (MCQ only v	Questions vith the		Subjective	e Que	stions	
		correct answ	wer)					
		No of question	Total Marks	No of question	To answer		ks per stion	Total Marks
A	ALL	to be set	10	to be set				
В	ALL			5	3	5		70
С	ALL			5	3	15		
	nly multiple ch rt.	oice type ques	tion (MCQ) wit	th one corre	ct answer are to	be se	t in the c	bjective
• Sp	ecific instructi			in the order	in answering ob	ojectiv	ve questi	ons should
		of the question						
	tion Scheme	for end sem						
Group		Chapter	Marks o	each	Question to l	be	Quest	ion to be

		question	set	answered
Α	ALL	1	10	10
В	ALL	5	5	3
С	ALL	15	5	3
Examination Scheme	e for Practica	al Sessional exam	ination:	
Practical Internal Se	ssional Cont	inuous Evaluatio	n	
Internal Examination	n:			
Continuous evaluation	1			40
External Examinatio	n: Examiner	ſ -		
Signed Lab Assignme	nts	10		
On Spot Experiment		40		
Viva voce		10		60

	the Course: M.Tech. in Int Personality development	ternet of Things through life enlightenment skills		
	ode:PGIT(IoT)205D	Semester: 2 nd		
	: 24 Hours	Maximum Marks: 100		
Teaching	Scheme	Examination Scheme		
Theory:02		End Semester Exam: 70		
Tutorial:0)	Attendance : 5		
Practical:	0	Continuous Assessment: 25		
Credit:0				
Aim:				
Sl. No.				
1.	Study of Shrimad-Bhagy personality and achieve	wad-Geeta will help the student in deve the highest goal in life	loping his	5
2.	The person who has stu prosperity	died Geeta will lead the nation and man	nkind to p	beace and
3.		will help in developing versatile perso	nality of s	students.
	-	· ·		
Objective	9:			
Sl. No.				
1.	To learn to achieve the			
2.		th stable mind, pleasing personality and	l determi	nation
3.	To awaken wisdom in s	tudents		
Pre-Requ	usite:			
Sl. No.				
1.				
2.				
Contents			Hrs./w	eek
Chapter	Name of the Topic		Hours	Marks
01		levelopment of personality	8	20
	• Verses- 19,20,21,	22 (wisdom)		
	• Verses- 29,31,32	(pride & heroism)		
	• Verses- 26,28,63,	65 (virtue)		
	• Verses- 52,53,59			

	 Verses- 71,73,75,78 (do's) Approach to day to day work and duties. ShrimadBhagwadGeeta : Chapter 2-Verses 41 Chapter 3-Verses 13, 21, 27, 35, Chapter 6-Ve 23, 35, Chapter 18-Verses 45, 46, 48. Statements of basic knowledge. ShrimadBhagwadGeeta: Chapter2-Verses 56, 					8 17,	20
03	 Shri Chaj Pers Chaj Chaj 		Geeta: Chap es 13, 14, 15, le model. Shr 17, Chapter 3 18, 38,39	ter2-Verses 5 16,17, 18 FimadBhagwa	adGeeta:	8	30
	Sub Total:					24	70
		essment Exan	nination & Pr	eparation of	Semester	4	30
	Examination	1				28	100
Name of	Author	Title of the	Book	Edition/IS	SSN/ISBN	Name of tl Publisher	he
Reference	re Books						
Reference 1.Swami Swarupa ita Ashra	inandaAdva	"Srimad Bh Gita"	agavad			(Publicati Departme Kolkata	
1.Swami Swarupa	nandaAdva am		i's Three liti-			Departme	nt), Sanskrit
1.Swami Swarupa ita Ashra 2.P.Gopin	nandaAdva am nath,	Gita" Bhartrihar Satakam (N sringar-vai	i's Three liti- ragya)			Departme Kolkata Rashtriya Sansthana	nt), Sanskrit
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq	nandaAdva am nath, quipment/ap	Gita" Bhartrihar Satakam (N sringar-vai paratus for la	i's Three liti- ragya) aboratory e			Departme Kolkata Rashtriya Sansthana Delhi.	nt), Sanskrit ım, New
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq End Sem	nandaAdva am nath,	Gita" Bhartrihar Satakam (N sringar-vai paratus for la	i's Three liti- ragya) aboratory e	xperiments kimum Mark		Departme Kolkata Rashtriya Sansthana	nt), Sanskrit ım, New
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq	nandaAdva am nath, quipment/ap	Gita" Bhartrihar Satakam (N sringar-vai paratus for la	i's Three liti- ragya) aboratory e ne. Max Questions vith the		ks-70.	Departme Kolkata Rashtriya Sansthana Delhi.	nt), Sanskrit ım, New
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq End Sem 3hrs.	nandaAdva am nath, quipment/ap ester Examin	Gita" Bhartrihar Satakam (N sringar-vai paratus for la ation Schem Objective (MCQ only w correct answ No of question	i's Three liti- ragya) aboratory e le. Max Questions vith the ver)	No of question	ks-70. Subjective	Departme Kolkata Rashtriya Sansthana Delhi. Time all Questions	nt), Sanskrit Im, New
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq End Sem 3hrs.	nandaAdva am nath, quipment/ap ester Examin	Gita" Bhartrihar Satakam (N sringar-vai paratus for la ation Schem (MCQ only w correct answ No of	i's Three liti- ragya) aboratory e e. Max Questions vith the ver) Total	kimum Mark	ks-70. Subjective	Departme Kolkata Rashtriya Sansthana Delhi. Time all Questions Marks per	nt), Sanskrit Im, New lotted-
1.Swami Swarupa ita Ashra 2.P.Gopin List of eq End Sem 3hrs. Group	nandaAdva am nath, quipment/ap ester Examin Unit	Gita" Bhartrihar Satakam (N sringar-vai paratus for la ation Schem Objective ((MCQ only w correct answ No of question to be set	i's Three liti- ragya) aboratory e e. Max Questions vith the ver) Total Marks	No of question	ks-70. Subjective	Departme Kolkata Rashtriya Sansthana Delhi. Time all Questions Marks per	nt), Sanskrit Im, New lotted-

- Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part.
- Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper.

Examination Sch	neme for end seme	ster examination	n:	
Group	Chapter	Marks of eac question	h Question to be set	Question to be answered
Α	ALL	1	10	10
В	ALL	5	5	3
С	ALL	15	5	3
Examination Sc	heme for Practica	l Sessional exan	ination:	
Practical Intern	al Sessional Conti	inuous Evaluatio	n	
Internal Examin	nation:			
Continuous evalu	uation			40
External Exami	nation: Examiner	-		
Signed Lab Assi	gnments	10		
On Spot Experin	nent	40		
Viva voce		10		60

Name of the Course: M.Tech. in Ir Subject:Term Paper with Seminar	nternet of Things
Course Code: PGIT(IoT)281	Semester: 4 th
Duration:24 hrs	Maximum Marks:100
Teaching Scheme	Examination Scheme100
Theory:0	End Semester Exam:
Tutorial:0	Teacher's Assessment:0
Practical:04	Internal Assessment:0
Credit:2	Practical Sessional internal continuous evaluation:40
	Practical Sessional external examination:60

Contents

Students will do projects on application areas of latest technologies and current topics of societal relevance.

Semester III

	loud Computing						
		Composition 2rd					
Diration	ode: PGIT(IoT)301A	Semester: 3 rd					
		Maximum Marks: 100					
Teaching	Scheme	Examination Scheme					
Theory: 3	<u></u>	End Semester Exam: 70					
Tutorial: 0		Attendance: 05					
Practical:	NA	Internal Assessment: 25	1	NT A			
Credit: 3		Practical Sessional internal continuous e		: NA			
		Practical Sessional external examination	: NA				
Aim:							
Sl. No.	T.J	••••••••••••••••••••••••••••••••••••••					
1.	Identify security aspec						
2.		ement strategy for moving to the Cloud					
3.		oud instance using a public cloud service	provider				
4.		rity model to different layer					
Objective	•						
Sl. No.							
1.	The student will also le world security probler	earn how to apply trust-based security m	lodel to r	eal-			
2.		icepts, processes, and best practices need	dod to su	ccoccfully			
2.		thin Cloud infrastructures.	ieu to su	ccessiuity			
3.		basic Cloud types and delivery models a	nd dovol	on an			
5.				-			
	understanding of the risk and compliance responsibilities and Challenges for each Cloud type and service						
	delivery model.						
Pre-Requ	isite:						
Sl. No.							
1.	Networking						
2.	Distributed Computing	1					
	I (,					
Contents			Hrs./w	eek			
Chapter	Name of the Topic		Hours	Marks			
01	Introduction to Cloud (Computing	4	10			
		s and Applications, Cloud introduction					
		t clouds, Risks, Novel applications of					
	cloud computing	rr rr					
02	Cloud Computing Arch	itecture	11	12			
		iction Cloud computing architecture,					
		g Virtualization at the infrastructure					
		computing environments, CPU					
		ssion on Hypervisors Storage					
		omputing Defined, The SPI Framework					
		The Traditional Software Model, The					
	Cloud Services Deliver						
	Cloud Deployment Mo						
1		g the Cloud, The Impact of Cloud					
		-					
	Computing on Users. G	overnance in the cloud, Barriers to					
	Computing on Users, G Cloud Computing Adop						
03	Cloud Computing Adop	otion in the Enterprise	4	12			
03	Cloud Computing Adop Security Issues in Clou	otion in the Enterprise	4	12			

				_			
			ity, Data Security Mitigat	tion			
		ata and Its Security d Access Management					
	-		allenges, Relevant IAM				
			Services, IAM Practices i	n			
		Cloud Authorization Ma					
04		anagement in the Cloud		8	3	16	
	Security Ma	the					
		Cloud, Availability Management: SaaS, PaaS, IaaS					
Privac	Privacy Iss						
			y Privacy Concerns in the	•			
		ecting Privacy, Change	-				
	0	-	elation to Cloud Computi	0.			
		al Laws and Regulation	s, U.S. Laws and Regulatio	JIIS,			
05	Audit and C	U U	15	1	1	15	
05		licy Compliance, Gover	mance Risk and	1		15	
			ternal Compliance, Cloud				
	-		ud for Compliance, Secur				
	as-a-Cloud	······································					
06	ADVANCED	TOPICS		1	0	5	
			oud and cloud security.				
	Sub Total:	-		4	8	70	
		essment Examination & F	reparation of Semester			30	
	Examination		reparation of Semester				
Skills (Examination Total: cal: to be developed	1 	- 			30 100	
Skills t List of Assign	Examination Total: cal: to be developed Practical: SI. No ments:	1 	reparation of Semester	t)			
Skills (List of Assign List of	Examination Total: cal: to be developed Practical: Sl. No ments: Books	1 	- 	t)			
Skills (List of Assign List of Text B	Examination Total: cal: to be developed Practical: Sl. No ments: Books	1 	- 	Name		100	
Skills (List of Assign List of Text B	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks:	1 1: 0. 1& 2 compulsory & a	t least three from the res			100	
Skills (List of Assign List of Text B	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks:	1 1: 0. 1& 2 compulsory & a	t least three from the res	Name		100	
Skills t List of Assign List of Text B	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks:	1 1: 0. 1& 2 compulsory & a	t least three from the res	Name		100	
Skills (List of Assign List of Text B	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks:	1 1: 0. 1& 2 compulsory & a	t least three from the res	Name		100	
Skills t List of Assign List of Text B Name	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks: of Author	1 1: 0. 1& 2 compulsory & a	t least three from the res	Name		100	
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Skills (List of Assign List of Text B Name Refere	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks: of Author	n l: o. 1& 2 compulsory & a Title of the Book	t least three from the res	Name		100	
Skills (List of Assign List of Text B Name Refere	Examination Total: cal: to be developed Practical: SI. No ments: Books ooks: of Author ence Books:	n 1: 1: 1: 1: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2	t least three from the res	Name		100	
Skills (List of Assign List of Text B Name Refere	Examination Total: cal: to be developed Practical: SI. No ments: Books ooks: of Author ence Books:	n l: o. 1& 2 compulsory & a Title of the Book	t least three from the res	Name		100	
Skills t List of Assign List of Text B Name	Examination Total: cal: to be developed Practical: SI. No ments: Books ooks: of Author ence Books:	tile of the Book Title of the Book Cloud Computing Explained: Implementation Handbook for	t least three from the res	Name		100	
List of Assign List of Text B Name Refere	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks: of Author ence Books: John Rhoton,	i D. 1& 2 compulsory & a Title of the Book Cloud Computing Explained: Implementation Handbook for Enterprises,	t least three from the res	Name Publi	sher	100 ne	
Skills to List of Assign List of Text B Name Refere 1.	Examination Total: cal: to be developed Practical: SI. No ments: Books ooks: of Author ence Books:	I: D. 1& 2 compulsory & a Title of the Book Cloud Computing Explained: Implementation Handbook for Enterprises, Cloud Security and	t least three from the rest Edition/ISSN/ISBN Publication Date: November 2, 2009	Name	sher	100 ne	
Skills to List of Assign List of Text B Name Refere 1.	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks: of Author ence Books: John Rhoton,	i D. 1& 2 compulsory & a Title of the Book Cloud Computing Explained: Implementation Handbook for Enterprises,	t least three from the rest Edition/ISSN/ISBN	Name Publi	sher	100 ne	
Skills to List of Assign List of Text B Name Refere 1.	Examination Total: cal: to be developed Practical: Sl. No ments: Books ooks: of Author ence Books: John Rhoton,	I: D. 1& 2 compulsory & a Title of the Book Cloud Computing Explained: Implementation Handbook for Enterprises, Cloud Security and Privacy: An	t least three from the rest Edition/ISSN/ISBN Edition/ISSN/ISBN Publication Date: November 2, 2009 ISBN-10: 0596802765,Septem	Name Publi	sher	100 ne	

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			i i i actitej,					
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Sl. No.	urphiene, u			Aper men				
1.								
2.								
3.								
4.								
5.								
End Sem	ester Exam	ination Scher	ne. Max	ximum Ma	rks-70.	Time	allotted-	
3hrs.								
Group	Unit		Questions		Subjective	e Question	S	
		(MCQ only						
		correct ans						
		No of question	Total Marks	No of question	To answer	Marks per	r Total Marks	
		to be set	Marks	to be set		question	Marks	
A	ALL	10	10					
В	ALL			5	3	5	70	
С	ALL			5	3	15		
pa • Sp be	nrt. Decific instruc given on top	ction to the stud o of the questior	lents to mainta 1 paper.	in the order	ect answer are to r in answering ol			
	tion Schem	e for end sem			1			
Group		Chapter	Marks o questio		Question to set	-	estion to be wered	
A		ALL	1		10	10		
B		ALL	5		5			
С		ALL	15		5	3		
Examinat	tion Schem	e for Practica	l Sessional e	xaminatio	n:	·		
		essional Conti	inuous Evalu	ation				
Internal	Examinatio	n:				<u>.</u>	4	
Five No of	f							
Experime	nts							
External E	Examination	: Examiner-					60	
	Note Book(f							
experimen	-							
	periment(on							
group cons	sisting 5 stud							
		Viva voce						

	the Course: M.Tech. in Inter			
	Real Time Operating system ode:PGIT(IoT)301B	n Semester: 3 rd		
		Maximum Marks: 100		
		Examination Scheme		
Teaching		Examination Scheme End Semester Exam: 70		
Theory: 3 Tutorial:		Attendance: 05		
Practical:		Internal Assessment: 25		
		Practical Sessional internal continuous ev		NI A
Credit: 3				INA
A :		Practical Sessional external examination:	INA	
Aim: Sl. No.	l			
	E-mlain frondam antal			
1.	time and resource limitat	l principles for programming of real ti tions.	me syste	ms with
2.	• Describe the foundat time programming.	tion for programming languages devel	loped for	real
3.	Account for how real	l time operating systems are designed	and func	tions.
4.	• Describe what a real			
5.	• Use real time system systems for real time app	n programming languages and real tim lications.	e operat	ing
6.		stems with regard to keeping time and	resourc	e
Objective	2:			
Sl. No.				
1.	Real-time scheduling and	schedule ability analysis.		
2.		verification of timing constraints and	propertie	es.
3.	Design methods for real-t	time systems.	-	
4.	Development and implem art real-time systems reso	nentation of new techniques to advanc	e the sta	te-of-the-
Pre-Requ				
Sl. No.				
1.	Operating system			
2.				
Contents			Hrs./w	eek
Chapter	Name of the Topic		Hours	Marks
01	Real Time Systems:		4	5
	Introduction to Real Time S	Systems, Classification of Real Time er Control, Types of Real Time		
02	-	on in Real Time Systems, Hardware Systems, Specialized Processors,	4	10
03		ems and Real Time Languages:	4	5
	Purpose of the Model, Struc Triggered versus Time-Trig	ctural Elements, Interfaces, Event- ggered, Interrupts, Overview of Real Time Languages, Modula 2 as Real Time	•	5

Assignm List of Bo Text Boo Name of Reference Jane Liu	ooks oks: Author Title of the Book Edition/ISSN/ISBN Nar Pul I I I I I I I I I I I I I I I I I I I	me of tl blisher entice H	1e [all, 2000.
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list of P	ractical: Sl. No. 1& 2 compulsory & at least three from the rest)		
	be actoropea.		
	be developed:		
Practica]:		
			100
	Examination Total:		100
	Internal Assessment Examination & Preparation of Semester		30
	Sub Total:	48	70
	Systems, Cryptography, Authentication, Design Principles.		
	Model for Network Security, Potential Attacks to Real Time		
	Failures, Errors, and Faults, Error Detection, Testing Techniques, A		
09	Fault Tolerance Techniques and Security in RTOS:	6	10
	RTDB Transactions, Disk Scheduling		
	Purpose Database, Transactions and Serializability, Scheduling		
	Petri Nets, Scheduler Characteristics, Real Time vs. General		
00	Petri Nets, Petri Nets and the Modeling of Systems, Properties of		5
08	Design Analysis:	6	5
	Yourdon Systems Method (YSM), The Ward and Mellor Essential Model, The Hatley and Pirbhai Requirements Model		
	Parallel Processing, Vector Computers, Multiple Tasks, Dispatcher,		
07	Multi- Processing Systems and Development Methodologies:	6	5
	Principles, Basic Design Using an RTOS		
	Systems, Preliminary Design, Basic Software Engineering		
	Planning and Development Phase, Specification for Real-Time		
06	Design of Real Time Systems:	6	10
	Kernels, Practical Real Time Operating Systems		
	Inter task Communication and Synchronization, Real Time		
	Real Time Operating Systems – 2:	6	10
05	Operating Systems		
05	Management, Scheduning Strategies, Commercial Real-time		
05	RTOS Overview, RTOS Components, Task Management & Memory Management, Scheduling Strategies, Commercial Real-time		

~			<u> </u>	1		0	
Group	Unit	(MCQ only	Questions		Subjective	e Questions	5
		correct ans					
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
• Sp be	e given on top	tion to the stud of the question e for end sem	n paper.		in answering of	ojective ques	tions should
	tion Schem	Chapter	Marks o		Question to l		stion to be
Group		Chapter	questio		set	-	vered
A		ALL	1		10	10	Vereu
B		ALL	5		5	3	
С		ALL	15		5	3	
Examina	tion Schem	e for Practica	l Sessional e	xaminatio	n:		
Practical		essional Cont	inuous Evalu	ation			
	Examinatio	n:				1	4
	C						
Five No o							
Internal Five No o Experime							
Five No o Experime	ents	Examiner-					6
Five No o Experime External l	ents Examination						6
Five No o Experime External I Signed Lab	ents Examination o Note Book(f						6
Five No o Experime External I Signed Lat experimer	ents Examination o Note Book(f	or five					6
Five No o Experime External I Signed Lal experimer On Spot Ex	ents E xamination o Note Book(f nts)	or five e for each					6

Name of	f the Course: M.tech. in Ir	iternet of Things
Subject:	Emulation and Simulation	on Methodologies
Course	Code:PGIT(IoT)301C	Semester: 3 rd
Duratio	n: 48 Hours	Maximum Marks: 100
Teachin	g Scheme	Examination Scheme
Theory:	3	End Semester Exam: 70
Tutorial	: 0	Attendance: 05
Practical	l: NA	Internal Assessment: 25
Credit: 3		Practical Sessional internal continuous evaluation: NA
		Practical Sessional external examination: NA
Aim:		
Sl. No.		
1.	Key concepts, tools an	d approaches for pattern recognition on complex data sets
2.	Kernel methods for ha	Indling high dimensional and non-linear patterns
3.	State-of-the-art algori networks	thms such as Support Vector Machines and Bayesian
4.	Theoretical concepts a	and the motivations behind different learning frameworks

5.	Be able to s	olve real-world machin	ne learning tasks: from da	ta to inferen	ce
Objective			0		
Sl. No.					
1.	This modul	e teaches the fundame	ntals of simulation and er	nulation	
			e on how to design a perfo		luation
	campaign,	Sico pro riani g garaano			uuuuon
2.		t scenario, select the a	ppropriate models, level (of granularity	V
	-	-	, and discuss the difference	•	y
	simulation	statistical correctiess,	, and unscuss the unit of the	es between	
3.	Emulation	platforms and how to u	se them for accurate perf	formance eva	aluation
	of commun		F		
Pre-Requ	isite:				
Sl. No.					
1.	Probability	Theory,			
2.	Computer N				
	-				
Contents				Hrs./w	eek
Chapter	Name of the	e Topic		Hours	Marks
01		als of Discrete Event Si	imulations (DES)	8	10
02	Model-base	d representation for D	ES, from communication	8	12
		king, to mobility and da	-		
03			quirements: from bit-leve	el, 8	12
	packet-leve	l, to system-level evalu	iation, and theirappropri	ate	
	selection as	a function of the appli	cation requirements.		
04	Fundament	als on Random Numbe	ers, Fundamentals on	12	16
	Statistical T	oolsfor Performance H	Evaluation, Simulation vs.		
	Emulations				
05	Case study	for the evaluation of co	ommunications for ITS.	8	15
06	Recent tren	ds in simulation and e	mulation for IOT, model	4	5
	based anda	pplication-based gran	ularity presentation		
	Sub Total:			48	70
	Internal Ass	essment Examination & P	Preparation of Semester		30
	Examination				
	Total:				100
Practical	:				
Skills to k	be developed				
List of Pr	actical: SI. No	o. 1& 2 compulsory & a	t least three from the rest	:)	
Assignme	ents:				
List of Bo	oks				
Text Boo					
Name of		Title of the Book	Edition/ISSN/ISBN	Name of the	•
ivanie of A	hulloi	THE UT HE DUUK	Euluoli/133N/13DN	Publisher	5
				1 001151101	
Referenc	e Books				
	C DOONS.				
Reference					

Sl. No.							
91.							
End Semo 3hrs.	ester Examin	ation Schei	ne. Max	ximum Mar	ks-70.	Time al	lotted-
Group Unit		Objective Questions (MCQ only with the correct answer)			Subjective	e Questions	
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
Group	tion Scheme	Chapter	Marks o question	of each	Question to set	be Ques answ	tion to be rered
A		ALL	1		10	10	cicu
B		ALL	5		5	3	
С		ALL	15		5	3	
Examina	tion Scheme	for Practica	l Sessional e	xaminatio	1:	I	
Practical	Internal Ses	sional Cont	inuous Evalu	ation			
	Examination	:					40
Five No of Experime							
F							
	Examination: H						60
Signed Lab experimen	Note Book(for ts)	five					
	periment(one sisting 5 studer						
		Viva voce					

Name of the Course: M.Tech. in Int	ernet of Things
Subject:Business Analytics	
Course Code:PGIT(IoT)302A	Semester: 3rd
Duration: 36 Hours	Maximum Marks:100
Teaching Scheme	Examination Scheme
Theory:03	End Semester Exam: 70
Tutorial:0	Attendance : 5
Practical:0	Continuous Assessment: 25
Credit: 03	
Aim:	
Sl. No.	

1.	Understand the role of business analytics within an organization.
2.	Analyze data using statistical and data mining techniques and understand
	relationships between the underlying business processes of an organization.
3.	To gain an understanding of how managers use business analytics to formulate and solve business problems and to support managerial decision making.
4.	To become familiar with processes needed to develop, report, and analyze business data.
5.	Use decision-making tools/Operations research techniques.
6	Mange business process using analytical and management tools.
7.	Analyze and solve problems from different industries such as manufacturing,
	service, retail, software, banking and finance, sports, pharmaceutical, aerospace
	etc.
Objectiv	ve:
Sl. No.	
1.	Students will demonstrate knowledge of data analytics.
2.	Students will demonstrate the ability of think critically in making decisions based on data and deep analytics.
3.	Students will demonstrate the ability to use technical skills in predicative and prescriptive modelling to support business decision-making.
4.	Students will demonstrate the ability to translate data into clear, actionable insights.
Pre-Rec	8
Sl. No.	
1.	
2.	
4.	

Contents		Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
01	Unit1: Business analytics: Overview of Business analytics, Scope of Business analytics, Business Analytics Process, Relationship of Business Analytics Process and organisation, competitive advantages of Business Analytics. Statistical Tools: Statistical Notation, Descriptive Statistical methods, Review of probability distribution and data	6	14
02	modelling, sampling and estimation methods overview. Trendiness and Regression Analysis: Modelling Relationships and Trends in Data, simple Linear Regression. Important Resources, Business Analytics Personnel, Data and models for Business analytics, problem solving, Visualizing and Exploring Data, Business Analytics Technology.	6	14
03	Organization Structures of Business analytics, Team management, Management Issues, Designing Information Policy, Outsourcing, Ensuring Data Quality, measuring contribution of Business analytics, Managing Changes. Descriptive Analytics, predictive analytics, predicative Modelling, Predictive analytics analysis, Data Mining, Data Mining Methodologies, Prescriptive analytics and its step in the business analytics Process, Prescriptive Modelling, nonlinear Optimization.	6	14
04	Forecasting Techniques: Qualitative and Judgmental Forecasting, Statistical Forecasting Models, Forecasting	6	14

	Time Series Seasonality Selecting A Monte Carl Simulation	s with a Line 7, Regressior ppropriate I o Simulatior Using Analy ent Model, No	ear Trend, Fe 1 Forecastin Forecasting 1 and Risk A vtic Solver Pl	g with Casu Models. nalysis: Mo latform, New	Fime Series v al Variables, nte Carle			
05	Decision Analysis: Formulating Decision Problems, Decision Strategies with the without OutcomeProbabilities,Decision Trees, The Value ofInformation, Utility and Decision Making.						6	10
06	intelligence	Recent Trends in : Embedded and collaborative business intelligence, Visual data recovery, Data Storytelling and Data journalism.						4
	Sub Total:						36	70
		essment Exar	nination & Pr	reparation of	Semester		4	30
	Examination	1					40	100
Practica	Total:						40	100
List of Be Text Boo		on theory						
	oks:	Title of the	Book	Edition/I	SSN/ISBN		ne of tl Dlisher	
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Text Boo Name of	oks:		Book	Edition/IS	SSN/ISBN			
Text Boo Name of Reference 1.Marc J Schniede	oks: Author ce Books: erjans, Dara ederjans, oher M.	Title of the Business a Principles, and Applic	nalytics Concepts, ations	Edition/IS	SSN/ISBN	Pub	rson F	T Press.
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		f the question p f or end seme	-	nation				
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B		ALL	5		5		3	
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		sional Conti						
	Examination							
Continuou	is evaluation							40
External	Examinatio	n: Examiner	-					
Signed La	b Assignmer	nts	10					
On Spot E	Experiment		40					
Viva voce	;		10					60

Subject:Industrial Safety Course Code:PGIT(IoT)302B Semester: III Duration: 36 Hours Maximum Marks:100 Teaching Scheme Examination Scheme Theory:03 End Semester Exam: 70 Tutorial:0 Attendance : 5 Practical:0 Continuous Assessment: 25 Credit: 03 Image: Continuous Assessment: 25 Aim: Si. No. 1 Image: Continuous Assessment: 25 Si. No. Image: Continuous Assessment: 25 Preceduation Image: Continuous Assessment: 25 Si. No. Image: Content Science Pre-Requisite: Image: Content Science Image: Content Science Si. No. Image: Content Science Image: Content Science Image: Content Science Contents Name of the Tonic Image: Content Science Image: Content Science		e Course: M.Tech. in In	iternet of Things		
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	Chapter	Name of the Topic		Hours	Marks
01Industrial safety: Accident, causes, types, results and814		-	cident, causes, types, results and		

	control, mechanical and electrical hazards, types, causes and		
	preventive steps/procedure, describe salient points of		
	factories act 1948 for health and safety, wash rooms, drinking water layouts, light, cleanliness, fire, guarding,		
	pressure vessels, etc, Safety color codes. Fire prevention and		
	firefighting, equipment and methods.		
02	Fundamentals of maintenance engineering: Definition and	8	14
	aim of maintenance engineering, Primary and secondary		
	functions and responsibility of maintenance department,		
	Types of maintenance, Types and applications of tools used		
	for maintenance, Maintenance cost & its relation with		
	replacement economy, Service life of equipment.	-	
)3	Wear and Corrosion and their prevention: Wear- types,	8	14
	causes, effects, wear reduction methods, lubricants-types		
	and applications, Lubrication methods, general sketch,		
	working and applications, i. Screw down grease cup, ii.		
	Pressure grease gun, iii. Splash lubrication, iv. Gravity lubrication, v. Wick feed lubrication vi. Side feed lubrication,		
	vii. Ring lubrication, Definition, principle and factors		
	affecting the corrosion. Types of corrosion, corrosion		
	prevention methods.		
)4	Fault tracing: Fault tracing-concept and importance,	8	14
51	decision tree concept, need and applications, sequence of	U	11
	fault-finding activities, show as decision tree, draw decision		
	tree for problems in machine tools, hydraulic, pneumatic,		
	automotive, thermal and electrical equipment's like, I. Any		
	one machine tool, ii. Pump iii. Air compressor, iv. Internal		
	combustion engine, v. Boiler,		
	vi. Electrical motors, Types of faults in machine tools		
	and their general causes.		
)5	Periodic and preventive maintenance: Periodic inspection-	4	14
	concept and need, degreasing, cleaning and repairing	-	
	schemes, overhauling of mechanical components,		
	overhauling of electrical motor, common troubles and		
	remedies of electric motor, repair complexities and its use,		
	definition, need, steps and advantages of preventive		
	maintenance. Steps/procedure for periodic and preventive		
	maintenance of: I. Machine tools, ii. Pumps, iii. Air		
	compressors, iv. Diesel generating (DG) sets, Program and		
	schedule of preventive maintenance of mechanical and		
	electrical equipment, advantages of preventive		
	maintenance. Repair cycle concept and importance		
	Sub Total:	36	70
	Internal Assessment Examination & Preparation of Semester Examination	4	30
	Total:	40	100
		1.0	
Assignme	nts: Based on theory		
List of Bo			
131 OI BO(
Fext Book			

						Publisher		
Reference	Books:							
1.Higgins	&	Maintenan	се			Da Inform	ation	
Morrow,		Engineerin				Services.		
<u></u>		Handbook,						
2.H. P. Gar	g,	Maintenan				S. Chand and Company.		
3.Audels,		Engineerin Pump-hydi	_			Mcgrew H		
5// iu uci3,		Compresso				Publicatio		
4.Winterk	korn, Hans,	Foundation				Chapman		
		Engineerin				London.		
- 10		Handbook,			1 = 0			
End Semes 3hrs.	ster Examin	ation Schem	ie. Max	kimum Mai	rks-70.	Time al	lotted-	
Group	Unit	Objective			Subjective	e Questions		
		(MCQ only v correct answ						
		No of	Total	No of	To answer	Marks per	Total	
		question	Marks	question		question	Marks	
		to be set		to be set				
A	ALL	10	10					
В	ALL			5	3	5	70	
D					5	5	10	
	ALL			5	3	15		
С	ALL			8	3			
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Course C	ode:PGIT(IoT)302C Semester: 3rd			
	n: 36 Hours Maximum Mark	ks:100		
Teaching	g Scheme Examination Sc	heme		
Theory:0		Exam: 70		
Tutorial:				
Practical:	0 Continuous As	sessment: 25		
Credit: 03	3			
Aim:				
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1.	Students should able to apply the dynamic discreet and continuous variables.	mic programming to so	live prob	lems of
2.	Students should able to apply the conce	ont of non-linear progr	amming	
3.	Students should able to apply the conce Students should able to carry out sensit		amming	
<u>.</u>	Students should able to early out sense Student should able to model the real w		ulate it.	
Pre-Requ		oria problem ana sim		
Sl. No.				
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Contents			Hrs./w	
Chapter	Name of the Topic		Hours	Marks
01	Optimization Techniques, Model Form			
01			7	14
01	General L.R Formulation, Simplex Tech		7	14
	General L.R Formulation, Simplex Tech Analysis, Inventory Control Models	niques, Sensitivity		
	General L.R Formulation, Simplex TechAnalysis, Inventory Control ModelsFormulation of a LPP - Graphical solution	niques, Sensitivity on revised simplex	7 8	14 14
01	General L.R Formulation, Simplex Tech Analysis, Inventory Control Models Formulation of a LPP - Graphical solution method - duality theory - dual simplex	niques, Sensitivity on revised simplex		
02	General L.R Formulation, Simplex Tech Analysis, Inventory Control Models Formulation of a LPP - Graphical solution method - duality theory - dual simplex in analysis - parametric programming	niques, Sensitivity on revised simplex method - sensitivity	8	14
	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex manalysis - parametric programmingNonlinear programming problem - Kuh	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions		
02	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex r analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem	niques, Sensitivity on revised simplex method - sensitivity n-Tucker conditions em - CPM/PERT	8 7	14 14
02	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex in analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single server	niques, Sensitivity on revised simplex method - sensitivity n-Tucker conditions em - CPM/PERT /er and multiple	8	14
02	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex r analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions em - CPM/PERT ver and multiple y models -	8 7	14 14
02	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex in analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single service server models - deterministic inventory	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions em - CPM/PERT ver and multiple y models -	8 7	14 14
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02 03 04	 General L.R Formulation, Simplex Tech Analysis, Inventory Control Models Formulation of a LPP - Graphical solution method - duality theory - dual simplex to analysis - parametric programming Nonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single server server models - deterministic inventory Probabilistic inventory control models Programming. Competitive Models, Single and Multi-ch Sequencing Models, Dynamic Programming 	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions em - CPM/PERT ver and multiple y models - - Geometric nannel Problems, ning, Flow in	8 7 7 7	14 14 14
02 03 04	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex to analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single server server models - deterministic inventory Probabilistic inventory control models Programming.Competitive Models, Single and Multi-ch Sequencing Models, Dynamic Programming Networks, Elementary Graph Theory, G	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions em - CPM/PERT ver and multiple y models - - Geometric nannel Problems, ning, Flow in	8 7 7 7	14 14 14
02 03 04	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex real analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single server server models - deterministic inventory Probabilistic inventory control models Programming.Competitive Models, Single and Multi-ch Sequencing Models, Dynamic Programming Networks, Elementary Graph Theory, G TheorySimulation	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions em - CPM/PERT ver and multiple y models - - Geometric nannel Problems, ning, Flow in	8 7 7 7 7	14 14 14 14
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02	General L.R Formulation, Simplex Tech Analysis, Inventory Control ModelsFormulation of a LPP - Graphical solution method - duality theory - dual simplex r analysis - parametric programmingNonlinear programming problem - Kuh min cost flow problem - max flow problem Scheduling and sequencing - single server server models - deterministic inventory Probabilistic inventory control models Programming.Competitive Models, Single and Multi-ch Sequencing Models, Dynamic Programming Networks, Elementary Graph Theory, G TheorySimulationSub Total: Internal Assessment Examination & Prepare	niques, Sensitivity on revised simplex method - sensitivity m-Tucker conditions <u>em - CPM/PERT</u> ver and multiple y models - - Geometric nannel Problems, ning, Flow in ame	8 7 7 7 7	14 14 14 14
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Practical	:							
Assignme	ents: Based o	on theory						
List of Bo Text Bool								
Name of A	Author	Title of the	Book	Edition/	'ISSN/ISBN		e of tl	ne
						Publi	isher	
Referenc	a Books							
1.H.A. Ta		Operations	Research.			PHI, 2	2008	
	,	An Introdu						
2.H.M. Wa	agner,	Principles of	of			PHI,	Delhi	, 1982.
21C D		Operations	· · · · · ·			Taka T	D 41-	
3.J.C. Pan	τ,	Introductio Optimisatio				2008		ers, Delhi,
		Operations				2000		
4.Hitler		Libermann						ill Pub.
F Down or		Operations				2009		lall of India
5.Panner	selvam,	Operations Research				2010		iali oi india
6.Harvey	M Wagner,	Principles of	of					Iall of India
-		Operations				2010		
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End Seme 3hrs.	ester Examin	ation Schem	e. Max	imum Ma	rks-70.	Tin	ne all	otted-
Group	Unit	Objective (Questions		Subjective	Quest	ions	
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		to be set		to be set		-		
A	ALL	10	10					
В	ALL			5	3	5		70
С	ALL			5	3	15		
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B		ALL	5		5		3	
С		ALL	15		5		3	

Examination Scheme for Practical	Sessional examination:	
Practical Internal Sessional Contin	uous Evaluation	
Internal Examination:		
Continuous evaluation		40
External Examination: Examiner-		
Signed Lab Assignments	10	
On Spot Experiment	40	
Viva voce	10	60

Subject: Cos	Course: M.Tech. in International Management of Engine			
Course Code		Semester: 3rd		
Duration: 3		Maximum Marks:100		
Teaching Sc	heme	Examination Scheme		
Theory:03		End Semester Exam: 70		
Tutorial:0		Attendance : 5		
Practical:0		Continuous Assessment: 25		
Credit: 03				
Aim:				
Sl. No.				
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Objective:	1			
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Pre-Requisi Sl. No.				
31. NO. 1.				
1. 2.				
2.				
Contents			Hrs./w	ook
Chapter	Name of the Topic		Hours	Marks
01		rview of the Strategic Cost	4	4
01	Management Process	view of the strategic cost	7	т
02		ion-making; Relevant cost,	6	6
		emental cost and Opportunity cost.		
	Objectives of a Costing	system; Inventory valuation;		
	Creation of a Database	for operational control; Provision of		
	data for Decision-Maki	ing.		
03	Project: meaning, Diffe	erent types, why to manage, cost	6	10
		ous stages of project execution:		
		sioning. Project execution as		
	_	hnical and non- technical activities.		
04		activities. Pre project execution main	8	20
		ents Project team: Role of each		
	member. Importance F	Project site: Data required with		

			•			1
		ance. Project contracts. Ty		ject		
		on Project cost control. Ba n. Project commissioning: 1		66		
		havior and Profit Planning	-	33		
		tion between Marginal Cos	U			
		; Break-even Analysis, Cost		sis.		
05		decision-making problem e Analysis. Pricing strateg		nd	3	10
06	Target of	costing, Life Cycle Costing.	Costing of service sect	tor.	5	10
		time approach, Material Ro				
	-	ise Resource Planning, To		nt		
		eory of constraints. Activity ment, Bench Marking; Bala	•			
	-	hain Analysis. Budgetary (ets:		
		nance budgets; Zero-based		•		
		ional profitability pricing	decisions including			
		r pricing.				
07	-	ative techniques for cost n	0		4	10
		nming, PERT/CPM, Transp nent problems, Simulation		r 17		
	13315111	ient problems, simulation	, Learning Curve Theo	лу.		
	Sub Tot	al:			36	70
		Assessment Examination & F	reparation of Semester		4	30
	Examina	tion			40	100
	Total:				40	100
List of Boo Text Books	-					
Name of Au	uthor	Title of the Book	Edition/ISSN/ISBN	Nar	ne of tl	ie
				Puł	olisher	
Reference	BOOKS:	Cost Accounting A		Dere	ntice H	
1.		Managerial Emphasis,			ia, New	
2. Cha	rles T.	Advanced Management		Inu	10, IVC W	Denn
Horngren a		Accounting				
George Fos		_				
	oert S	Management & Cost				
Kaplan Ant	thony A.	Accounting				
<u>Alkinson,</u> 4. Ash	ish K.	Principles & Practices		1A74	ممامع	ublisher
4. Asn Bhattachai	-	of Cost Accounting A. H.		vv fi	eeler p	ublisher
	. Vohra,	Quantitative		Tat	a McGr	aw Hill
		Techniques in			ok Co. L	-
		Management,				
		paratus for laboratory exp				
Ena Semes	ter Exami	nation Scheme. Maxin	num Marks-70.	T	ime all	otted-

3hrs.							
Group	Unit	Objective (MCQ only v correct ans			Subjectiv	e Question:	5
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
А	ALL	10	10				
В	ALL			5	3	5	70
С	ALL			5	3	15	
Examina Group	tion Schem	e for end sem Chapter	ester examin Marks of question	feach	Question to set	answ	tion to be vered
A		ALL	1		10	10	
B C		ALL ALL	5 15		5	3	
-	ation Schen	ne for Practic		examinati	-	3	
		Sessional Con					
Internal	Examinati	on:					
	ous evaluation						40
		ion: Examine					
-	ab Assignm		10				
	Experiment		40				()
Viva voc	e		10				60

Name of the Course: M.Tech. in Int Subject:Composite Materials	ternet of Things
Course Code:PGIT(IoT)302E	Semester: III
Duration: 36 Hours	Maximum Marks:100
Teaching Scheme	Examination Scheme
Theory:03	End Semester Exam: 70
Tutorial:0	Attendance : 5
Practical:0	Continuous Assessment: 25
Credit: 03	
Aim:	
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Objective:	
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01 I c a r E fi 02 R	Name of the To NTRODUCTIC characteristic application of reinforcement	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and		Hrs./wo Hours 7	eek Marks 14
2. Contents Chapter N 01 II c a r E fi 02 R	NTRODUCTIC characteristic application of reinforcement Effect of reinfo	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and		Hours	Marks
Contents Chapter N 01 I c a r E fi 02 R	NTRODUCTIC characteristic application of reinforcement Effect of reinfo	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and		Hours	Marks
ChapterN01IIcarEfi02R	NTRODUCTIC characteristic application of reinforcement Effect of reinfo	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and		Hours	Marks
ChapterN01IIcarEfi02R	NTRODUCTIC characteristic application of reinforcement Effect of reinfo	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and		Hours	Marks
01 I c a r E fi 02 R	NTRODUCTIC characteristic application of reinforcement Effect of reinfo	DN: Definition – Classif s of Composite materi composites. Function t and matrix.	ials. Advantages and			
C a r E fr 02 R	characteristic application of reinforcement Effect of reinfo	s of Composite materi composites. Function t and matrix.	ials. Advantages and		7	14
a r E fr 02 R	application of reinforcement Effect of reinfo	composites. Function t and matrix.	•			
02 R	reinforcement Effect of reinfo	t and matrix.	al requirements of			
E fr 02 R	Effect of reinfo					
61 02 R						
02 R	1 allion i on ov		, distribution, volume			
		. .		nd	7	14
0			up, curing, properties a fibers, Kevlar fibers and		/	14
		Properties and application		1		
			l Behavior of composite	s:		
		es, Inverse rule of mix		.51		
	sostress cond	•				
03 N	Manufacturing	g of Metal Matrix Com	posites: Casting – Solid		7	14
			- Hot isostatic pressing			
	-		acturing of Ceramic Mat			
			on – Liquid phase sinter	i ng.		
		g of Carbon - Carbon c				
	3	ving. Properties and a			0	14
			omposites: Preparation = - hand layup method -	01	8	14
			ng method – Compressi	on		
		action injection moul				
	applications.	,	8 1			
05 S	Strength: Lam	inar Failure Criteria-s	strength ratio, maximur	n	7	14
		•	eria, interacting failure	:		
			inate first play failure-			
			-ply discount truncated			
	naximum stra stress concent	· 0	design using caplet plo	ts;		
	Sub Total:	,1 au0115.			36	70
		ment Examination & Pro	enaration of Semester		<u>30</u> 4	30
	Examination		eparation of Semester		т	50
Г	Fotal:				40	100

Examin	ation Schen	ne for Pract	ical Se	ssion	al examina	ation:			
		Sessional Co	ntinuo	us Ev	aluation				
	l Examinati								
	ous evaluation								4
		ion: Examin	ler-						
	Lab Assignn			10					
-	t Experiment			40					
Viva vo	ce			10					6
D (
Reference 1. Lu		Hand Book	x of						
		Composite							
2. K.H	K.Chawla.	Composite	Mater	ials					
3. Del	borah D.L.	Composite	Mater	ials					
Ch	lung.	Science an							
		Application							
	Gay, Suong	Composite		ials					
	nd Stephen	Design and							
W. Tasi.		Application		8.4	·	1 50		. 11	
End Seme 3hrs.	ester Examir	ation Schen	1e.	Max	kimum Ma			'ime all	lotted-
Group	Unit	Objective (MCQ only v correct answ	with the			Subjective	e Que	stions	
		No of question to be set	Total Marks	S	No of question to be set	To answer		ks per stion	Total Marks
А	ALL	10	10						
В	ALL				5	3	5		70
С	ALL				5	3	15		
• On	ly multiple ch	oice type ques	tion (M0	CQ) wi		ct answer are to		t in the o	objective
pa:		on to the start	onta to	naint-	in the and	in onorication -1			one charle
		on to the stud of the question		nainta	in the order	in answering of	Jectiv	e questi	ions snould
		for end sem		xami	nation:				
Group		Chapter			of each	Question to l	be	Ques	tion to be
r				iestio		set		answ	
A		ALL	1			10		10	
В		ALL	5			5		3	
С		ALL	15	5		5		3	
Name of t	he Course: N	4.Tech. in Int	ernet o	f Thin	gs				
	aste to Ener								
	ode:PGIT(Io	Г)302F		ester					
	36 Hours				Marks:10				
Teaching	Scheme		Exan	ninat	ion Schem	e			

Teaching Scheme	
Theory:03	End Semester Exam: 70
Tutorial:0	Attendance : 5
Practical:0	Continuous Assessment: 25
Credit: 03	

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Objective			
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Dro Dogu	isito		
Pre-Requ	iisite:		
Sl. No.			
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2.			
Contents		Hrs./w	eek
Chapter	Name of the Topic	Hours	Marks
01	Introduction to Energy from Waste: Classification of waste as	7	14
	fuel – Agro based, Forest residue, Industrial waste - MSW –		
	Conversion devices – Incinerators, gasifiers, digestors		
02	Biomass Pyrolysis: Pyrolysis – Types, slow fast – Manufacture	7	14
	of charcoal - Methods - Yields and application - Manufacture		
	of pyrolytic oils and gases, yields and applications.		
03	Biomass Gasification: Gasifiers – Fixed bed system –	7	14
	Downdraft and updraft gasifiers – Fluidized bed gasifiers –		
	Design, construction and operation – Gasifier burner		
	arrangement for thermal heating – Gasifier engine		
	arrangement and electrical power – Equilibrium and kinetic		
	consideration in gasifier operation.		
04	Biomass Combustion: Biomass stoves – Improved chullahs,	7	14
01	types, some exotic designs, Fixed bed combustors, Types,	'	
	inclined grate combustors, Fluidized bed combustors, Types,		
	construction and operation - Operation of all the above		
	biomass combustors.		
05	Biogas: Properties of biogas (Calorific value and composition)	8	14
05	- Biogas plant technology and status - Bio energy system -	U	1.4
	Design and constructional features - Biomass resources and		
	their classification - Biomass conversion processes - Thermo		
	chemical conversion - Direct combustion - biomass		
	gasification - pyrolysis and liquefaction - biochemical		
	conversion - anaerobic digestion - Types of biogas Plants –		
	5 FI 6		
	Applications - Alcohol production from biomass - Bio diesel production - Urban waste to energy conversion - Biomass		
	energy programme in India. Sub Total:	26	70
		36	
	Internal Assessment Examination & Preparation of Semester	4	30
	Examination Total:	40	100
Dece 12		40	100
Practical			
Assignme	ents: Based on theory		

Γ

Name of A	ks: Author	Title of the	Book	Edition/I	SSN/ISBN	Name of t	he
						Publisher	
Reference	Books:						
1.Desai, A		Non-Conve Energy,	entional			Wiley Eas 1990.	tern Ltd.,
2.Khandelwal, K. C.		Biogas Technology - A		Vol. I & II)	Tata McGi	raw Hill
and Mahd	li, S. S.,	Practical H	and Book -			Publishin 1983.	g Co. Ltd.,
3.Challal,		Food, Feed from Biom	ass,			IBH Publis Pvt. Ltd., 1	l991.
4.C. Y. We Brobby a Hagan,		Biomass Co and Techn				John Wile 1996.	y & Sons,
	uipment/ap	paratus for l	aboratory e	speriments	S:		
Sl. No.	<u> </u>			1			
1.							
2.							
2. 3.							
2. 3. 4.							
2. 3. 4. 5.							
2. 3. 4. 5.		nation Schen		imum Mar		Time al	lotted-
2. 3. 4. 5. End Seme	ester Examin Unit	Objective (MCQ only v	Questions with the	imum Mar		Time all e Questions	lotted-
2. 3. 4. 5. End Seme 3hrs.		Objective	Questions with the	imum Mar No of			lotted-
2. 3. 4. 5. End Seme 3hrs.		Objective (MCQ only v correct answ	Questions with the wer)		Subjective	e Questions	
2. 3. 4. 5. End Seme 3hrs. Group		Objective (MCQ only v correct answ No of question	Questions with the wer) Total	No of question	Subjective	Questions Marks per	Total
2. 3. 4. 5. End Seme 3hrs.	Unit	Objective (MCQ only v correct answ No of question to be set	Questions with the wer) Total Marks	No of question	Subjective	Questions Marks per	Total
2. 3. 4. 5. End Seme 3hrs. Group	Unit ALL	Objective (MCQ only v correct answ No of question to be set	Questions with the wer) Total Marks	No of question to be set	Subjective To answer	e Questions Marks per question	Total Marks
2. 3. 4. 5. End Seme 3hrs. Group A B	Unit ALL ALL ALL ly multiple ch	Objective (MCQ only v correct answ No of question to be set10	Questions with the wer) Total Marks 10	No of question to be set 5 5	Subjective To answer	e Questions Marks per question 5 15	Total Marks 70
2. 3. 4. 5. End Seme 3hrs. Group A A B C • On pa • Sp be	Unit Unit ALL ALL ly multiple ch rt. ecific instruct given on top	Objective (MCQ only v correct answing) No of question to be set 10 noice type question ion to the study of the question	Questions with the wer) Total Marks 10 tion (MCQ) wit ents to maintai paper.	No of question to be set 5 5 h one correc n the order i	Subjective To answer 3 3	e Questions Marks per question 5 15 be set in the	Total Marks 70
2. 3. 4. 5. End Seme 3hrs. Group A B C 0n pa 5p be Examinat	Unit Unit ALL ALL ly multiple ch rt. ecific instruct given on top	Objective (MCQ only v correct answer No of question to be set 10 10 oice type question ion to the study of the question for end sem	Questions with the wer) Total Marks 10 tion (MCQ) wit ents to maintai paper. ester examin	No of question to be set 5 5 h one correc n the order i nation:	Subjective To answer 3 3 t answer are to n answering of	e Questions Marks per question 5 15 be set in the o pjective quest	Total Marks 70 objective ions should
2. 3. 4. 5. End Seme 3hrs. Group A A B C • On pa • Sp be	Unit Unit ALL ALL ly multiple ch rt. ecific instruct given on top	Objective (MCQ only v correct answing) No of question to be set 10 noice type question ion to the study of the question	Questions with the wer) Total Marks 10 tion (MCQ) wite ents to maintain paper. ester examine Marks o	No of question to be set 5 5 h one correc n the order i nation: f each	Subjective To answer 3 3 t answer are to n answering of Question to I	e Questions Marks per question 5 15 be set in the o pjective quest be Ques	Total Marks 70 objective ions should
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2. 3. 4. 5. End Seme Bhrs. Group A A C 0 n pa Sp be Examinat Group A	Unit Unit ALL ALL ly multiple ch rt. ecific instruct given on top	Objective (MCQ only v correct answing) No of question to be set 10 ooice type question ion to the study of the question for end sem Chapter	Questions with the wer) Total Marks 10 tion (MCQ) wit ents to maintai paper. ester examin Marks o question	No of question to be set 5 5 h one correc n the order i nation: f each n	Subjective To answer 3 3 t answer are to n answering of Question to l set	e Questions Marks per question 5 15 be set in the opjective quest be Ques answ	Total Marks 70 objective ions should
2. 3. 4. 5. End Seme 3hrs. Group A B C 0n pa • On pa • Sp be Examinat	Unit Unit ALL ALL ly multiple ch rt. ecific instruct given on top	Objective (MCQ only v correct answing) No of question to be set 10 orice type question to the study of the question for end sem Chapter ALL	Questions with the wer) Total Marks 10 tion (MCQ) wite ents to maintain paper. ester examine Marks on question 1	No of question to be set 5 5 h one correc n the order i nation: f each n	Subjective To answer 3 3 t answer are to an answering of Question to b set 10	e Questions Marks per question 5 15 be set in the opjective quest be Question 10	Total Marks 70 objective ions should

Continuous evaluation		40
External Examination: Examiner-		
Signed Lab Assignments	10	
On Spot Experiment	40	
Viva voce	10	60

Name of the Course: M.Tech. in Internet of Things Subject: Dissertation-I /Industrial Project		
Course Code:PGIT(IoT)381	Semester: 3 rd	
Teaching Scheme	Examination Scheme100	
Theory:0	End Semester Exam:	
Tutorial:0	Teacher's Assessment:0	
Practical:20	Internal Assessment:0	
Credit:10	Practical Sessional internal continuous evaluation:40	
	Practical Sessional external examination:60	

Content

The dissertation / project topic should be selected / chosen to ensure the satisfaction of the urgent need to establish a direct link between education, national development and productivity and thus reduce the gap between the world of work and the world of study. The dissertation should have the following

Relevance to social needs of society

Relevance to value addition to existing facilities in the institute

Relevance to industry need

Problems of national importance

Research and development in various domain The

student should complete the following:

Literature survey Problem Definition

Motivation for study and Objectives

Preliminary design / feasibility / modular approaches

Implementation and Verification

Report and presentation

The dissertation stage II is based on a report prepared by the students on dissertation allotted to them. It may be based on:

Experimental verification / Proof of concept.

Design, fabrication, testing of Communication System.

The viva-voce examination will be based on the above report and work.

Semester IV

Subject:Dissertation II		
Course Code:PGIT(IoT)481	Semester: 3 rd	
Teaching Scheme	Examination Scheme100	
Theory:0	End Semester Exam:	
Tutorial:0	Teacher's Assessment:0	
Practical:32	Internal Assessment:0	
Credit:16	Practical Sessional internal continuous evaluation:40	
	Practical Sessional external examination:60	

relevance.

Guidelines for Dissertation Phase-I and II

As per the AICTE directives, the dissertation is a yearlong activity, to be carried out and evaluated in two phases i.e. Phase – I: July to December and Phase – II: January to June. The dissertation may be carried out preferably in-house i.e. department's laboratories and centers OR in industry allotted through department's T & P coordinator.

After multiple interactions with guide and based on comprehensive literature survey, the student shall identify the domain and define dissertation objectives. The referred literature should preferably include IEEE/IET/IETE/Springer/Science Direct/ACM journals in the areas of Computing and Processing (Hardware and Software), Circuits-Devices and Systems, Communication-Networking and Security, Robotics and Control Systems, Signal Processing and Analysis and any other related domain. In case of Industry sponsored projects, the relevant application notes, while papers, product catalogues should be referred and reported.

Student is expected to detail out specifications, methodology, resources required, critical issues involved in design and implementation and phase wise work distribution, and submit the proposal within a month from the date of registration.

Phase – I deliverables: A document report comprising of summary of literature survey, detailed objectives, project specifications, paper and/or computer aided design, proof of concept/functionality, part results, A record of continuous progress.

Phase – I evaluation: A committee comprising of guides of respective specialization shall assess the progress/performance of the student based on report, presentation and Q & A. In case of unsatisfactory performance, committee may recommend repeating the Phase-I work.

During phase – II, student is expected to exert on design, development and testing of the proposed work as per the schedule. Accomplished results/contributions/innovations should be published in terms of research papers in reputed journals and reviewed focused conferences OR IP/Patents.

Phase – II deliverables: A dissertation report as per the specified format, developed system in the form of hardware and/or software, A record of continuous progress.

Phase – II evaluation: Guide along with appointed external examiner shall assess the progress/performance of the student based on report, presentation and Q & A. In case of unsatisfactory performance, committee may recommend for extension or repeating the work