



Faculty of Engineering and Technology

BCA Cloud Computing

Syllabus

2018

	SGT UNIVERSITY								
	FACULTY OF ENGINEERING & TE	ECF	IN	OL	.OGY	7			
SCHE	SCHEME OF EXMAINATION - BACHELOR OF COMPUTER APPLICATIONS								
	(Cloud Computing)								
Subject Code			T		Tatal	104	Ev4	Total	Credite
13450101	Computer Basics and PC Software	ר ג	1	P		10 10	EX	100	
13450102	Software Foundation	2	-	-	2	40	60	100	+ 2
13450103	Basic Mathematics	3	1	-	4	40	60	100	4
13450104	Communication & Soft Skills	4	-	-	4	40	60	100	4
13450105	Business Organisation	4	-	-	4	40	60	100	4
13450106	Word Processing – Practical	-	-	4	4	40	60	100	2
13450107	Software Foundation - Practical	-	-	2	2	40	60	100	1
	Total								
	SEMESTER II	-				•		•	
Subject Code	Title	L	Т	Ρ	Total	Int	Ext	Total	Credits
13450201	Programming in Python	2	-	-	2	40	60	100	2
13450202	Computer Organization	4	-	-	4	40	60	100	4
13450203	Communication & Soft Skills –II	4	-	-	4	40	60	100	4
13450204	Discrete Mathematics	4	-	-	4	40	60	100	4
13450205	Computer Organization Practical	4	-	-	4	40	60	100	4
13450200	Programming in (C' - Practical	-	-	4	4	40	60	100	2
13450207	Programming in Python - Practical	<u> </u>	-	4	4	40	60	100	<u> </u>
13450209	Colloquium - Practical	-	-	2	2	40	60	100	1
10100200	Total			-				100	•
	SEMESTER III								
Subject Code	Title	L	Т	Ρ	Total	Int	Ext	Total	Credits
13450301	Data Structure using C	4	-	-	4	40	60	100	4
13450302	Database Management System	3	-	-	3	40	60	100	3
13450303	Programming in C++			I	4	40	60	100	4
13450304	System Analysis & Design	4	-	-	4	40	60	100	4
13450305	Programming in C++ Practical	-	-	4	4	40	60	100	2
13450306	Data Structure using C: Practical			4	4	40	60	100	2
13450307	Database Management Systems- Practical	-	-	4	4	40	60	100	2
13450308	Colloquium - Practical	-	-	2	2	40	60	100	1
Subject Code			т	D	Total	Int	Evt	Total	Credite
13450401	Computer Networks		-	F		40	60	100	
13450401	Operating System	4	-	-	4 4	40	60	100	4
13450403	Application Development for Cloud Plateform	2	-	-	2	40	60	100	2
13450404	Introduction to Algorithm Design	4	-	-	4	40	60	100	4
13450405	Application Development for Cloud Plateform- Practical	-	-	2	2	40	60	100	1
13450406	Operating System - Practical	-	-	4	4	40	60	100	2
13450407	Colloquium - Practical	-	-	2	2	40	60	100	1
13450408	Seminar	0	-	4	4	40	60	100	2
	Total								
	SEMESTER V	•				-		•	
Subject Code	Title	L	Т	Ρ	Total	Int	Ext	Total	Credits
13450501	Software Engineering	4	-	-	4	40	60	100	4
13450502	Essential of Hadoop	3	-	-	3	40	60	100	3
13450503	VVED Programming	4	-	-	4	40	60	100	4
13450504	Minor Project Proctical	2	-	-	<u> </u>	40	60	100	2
13450505	Web Programming - Practical	-	-	4 1	4	40	60	100	2
13450500	Essential of Hadoon - Practical	-	-	+ 2	+ 2	40	60	100	1
13450508	IOT Application Development (Using Cloud Plateform)- Pr	acti	L Cal	2	2	40	60	100	1
13450509	Seminar	-	-	4	4	40	60	100	2
	Total							_	

	SEMESTER VI								
Subject Code	Title	L	Т	Ρ	Total	Int	Ext	Total	Credits
13450601	Artificial Intelligence	4	-	-	4	40	60	100	4
13450602	Advance RDBMS	3	-	-	3	40	60	100	3
13450603	Enterprise Mobile Application Development				2	40	60	100	2
13450604	AI - Practical			4	4	40	60	100	2
13450605	Advance RDBMS - Practical			2	2	40	60	100	1
13450606	606 Enterprise Mobile Application Development - Practical		-	2	2	40	60	100	1
13450607	Major Project			8	8	100	100	200	8
	Total								

1. Name of the Depa	rtment- Computer	Science & Engineering				
2. Course Name	Software	т	Т	р		
	Engineering		1	P		
3. Course Code	13450501	4	0	0		
4. Type of Course (u	se tick mark)	Core (✓)	PE ()	OE ()		
5. Pre-requisite (if		6. Frequency (use	Even Odd ()	Either Every		
any)		uck marks)	(🗸)	Sem () Sem ()		
7. Total Number of I	Lectures, Tutorials	, Practical (assuming 1	2 weeks of one set	mester)		
Lectures = 48		Tutorials = 0	Practical = 0	,		
8. Course Descriptio	n					
In this course, new soft	tware models, techn	iques and technologies t	o bring out innova	tive and		
novelistic solutions for	the growth of the se	ociety in all aspects and	evolving into their	continuous		
professional developm	ent.					
Learning objectives:						
To Know the Basics o	f Software Architec	ture				
To Understand various	phases of Software	Development Cycle				
9. Course Outcomes (COs):						
3 Students will be able perform various life cycle activities like Analysis , Design, Implementation,						
Testing and Maintenance.						
Studente will be able to	In our vonious nas	access used in all the pho-	and of the product			
Students will be able to	b know various proc	esses used in an the pha	ses of the product	tuyona nna du at		
Students can apply the	knowledge, technic	ques, and skins in the dev	veropment of a sor	tware product.		
10. Unit wise detailed	content					
Unit-1	Number of					
	lectures $= 12$					
Software: Charact	teristics. Compone	ents. Applications. An	d Software Proc	ess Models:		
Waterfall, Spiral.	Prototyping. For	urth Generation Tech	niques. Concepts	of Project		
Management, Role	of Metrics & Meas	urements.	1,	J		
Unit – 2	Number of					
	lectures = 12					

Project Planning: Objectives, Decomposition techniques: S/W Sizing, Problem-

based estimation, Process based estimation, Cost Estimation Models: COCOMO Model,

The S/W Equation, System Analysis: Principles of Structured Analysis, Requirement

analysis, DFD, Entity Relationship diagram, Data dictionary.

Unit – 3	Number of	
	lectures = 12	

Design: Objectives, Principles, Concepts, Design methodologies: Data design, Architectural design, procedural design, Object -oriented concepts

Unit – 4	Number of	
	lectures = 12	

Testing fundamentals: Objectives, principles, Testability, Test cases: White box & Black box testing, Testing strategies: verification & validation, unit test, integration testing, validation testing, system testing.

11. Brief Description of self-learning / E-learning component

https://elearning.sgtuniversity.ac.in/course-category/Software engineering

12. Books Recommended Text Books

1. Software Engineering - A Practitioner"s Approach, Roger S. Pressman, MGH, NEW

DELHI., NEW DELHI. Publications, New Delhi.

Reference Books

- 1. Fundamentals of Software Engineering, Rajib Mall, PHI, New Delhi.
- 2. An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publications, New Delhi.

1. Name of the Department- Computer Science & Engineering							
2. Course Name	ESSENTIAL	т	т	р			
	OF HADOOP	L	1	r			
3. Course Code	13450502	3	0	2			
4. Type of Course (u	se tick mark)	Core (✓)	PE()	OE ()			
5. Pre-requisite (if	Java	6. Frequency (use	Even Odd ()	Either Every			
any)		tick marks)	(✔)	Sem () Sem ()			
7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)							
Lectures = 36		Tutorials = 0	Practical = 0				
8. Course Description	n						
The course begins with	a brief introduction	n to the Hadoop Distribu	ted File System an	d MapReduce,			
then covers several ope	en source ecosystem	tools, such as Apache S	park, Apache Dril	l, and Apache			
Flume. Finally, these to	ools are applied to r	eal-world use cases. Idea	l for business man	agers, students,			
developers, administra	tors, analysts or any	one interested in learning	g the fundamentals	of transitioning			
from traditional data m	odels to big data m	odels.		C			
9. Learning objectiv	es:						
• Provide the ski	lls needed for buildi	ing computer system for	various application	ns in a career in			
Computer Scient	nce field.		11				
• Explain the cha	racteristics of Big I	Data					
• Describe the ba	sics of Hadoop and	HDFS architecture					
• List the feature	s and processes of N	MapReduce					
• Describe the ba	sics of Pig	-					
10. Course Outcomes (COs):							
Understanding of Big Data problems with easy to understand examples.							
History and adv	History and advent of Hadoop right from when Hadoop wasn't even named Hadoop.						
What is Hadoo	What is Hadoop Magic which makes it so unique and powerful.						
• Understanding	• Understanding the difference between Data science and data engineering, which is one of the						
big confusions	big confusions in selecting a carrier or understanding a job role.						
And most impo	ortantly, demystifyii	ng Hadoop vendors like	Cloudera, MapR a	and Hortonworks			
by understandin	ng about them.						
11. Unit wise detailed content							
Unit-1	Number of						
	lectures = 09						
Data structures in Java:							
Linked List, Stacks, Queues, Sets, Maps; Generics: Generic classes and Type parameters,							
Implementing Generic Types, Generic Methods, Wrapper Classes, Concept of Serialization							
		· • • • · · · · · · · · · · · · · · · ·	1				
Unit – 2	Number of						
	lectures = 09						
Working with Rig Do	ta.						
1 TO KING WITH DIG Da							

Google File System, Hadoop Distributed File System (HDFS) – Building blocks of Hadoop(Namenode, Datanode, Secondary Namenode, JobTracker, TaskTracker), Introducing and Configuring Hadoop cluster (Local,Pseudo-distributed mode, Fully Distributed mode), Configuring XML files.Writing MapReduce Programs:

Unit – 3	Number of
	lectures = 09

Hadoop I/O:

The Writable Interface, WritableComparable and comparators, Writable Classes: Writable wrappers for Java primitives, Text, BytesWritable, NullWritable, ObjectWritable and GenericWritable, Writable collections, Implementing a Custom Writable: Implementing a RawComparator for speed,

Custom comparators

Unit – 4	Number of	
	lectures = 09	

Hadoop Programming

Made Easier Admiring the Pig Architecture, Going with the Pig Latin Application Flow, Working through the ABCs of Pig Latin, Evaluating Local and Distributed Modes of Running Pig Scripts, Checking out the Pig Script Interfaces, Scripting with Pig Latin

12. Brief Description of self-learning / E-learning component https://elearning.sgtuniversity.ac.in/course-category/ESSENTIAL OF HADOOP

13. Books Recommended

Text Books

Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly

Reference Books

Hadoop for Dummies by Dirk deRoos, Paul C.Zikopoulos, Roman B.Melnyk,Bruce Brown, Rafael Coss

Big Java 4th Edition, Cay Horstmann, Wiley John Wiley & Sons, INC

Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly Hadoop in Action by Chuck Lam, MANNING Publ.

1.	1. Name of the Department- Computer Science & Engineering						
2.	Course Name	ESSENTIAL					
		OF HADOOP	L	Т	Р		
		LAB					
3.	Course Code	13450507	0	0	2		
4.	Type of Course (u	se tick mark)	Core (✓)	PE ()	OE ()		
5.	Pre-requisite (if	Java	6. Frequency (use	Even Odd ()	Either Every		
	any)		tick marks)	(✔)	Sem () Sem ()		
7.	Total Number of	Lectures, Tutorials	, Practical (assuming 1	2 weeks of one set	mester)		
Le	Lectures = 0 Tutorials = 0 Practical = 24						
8.	Course Description	n					
	The course begins	with a brief introduc	ction to the Hadoop Distr	ributed File System	n and		
	MapReduce, then c	covers several open	source ecosystem tools,	such as Apache Sp	ark, Apache		
	Drill, and Apache I	Flume. Finally, these	e tools are applied to real	l-world use cases.	Ideal for		
	business managers,	, students, developer	rs, administrators, analys	sts or anyone intere	ested in learning		
	the fundamentals o	f transitioning from	traditional data models	to big data models			
9.	Learning objectiv	es:					
•	Provide the skills needed for building computer system for various applications in a career in						
•	Computer Scien	nce field.					
•	Explain the cha	aracteristics of Big I	Data				
•	Describe the ba	isics of Hadoop and	HDFS architecture	1			
•	List the feature	s and processes of N	AapReduce, Describe the	e basics of Pig			
10	Course Outcomes	(COs):					
	Understanding	of Big Data problem	ms with easy to understa	nd examples.	. 1		
	History and adv	vent of Hadoop righ	t from when Hadoop wa	sn't even named H	ladoop.		
	What is Hadoo	p Magic which mak	es it so unique and powe	ertul.			
	• Understanding	the difference betw	een Data science and da	ita engineering, wh	nich is one of the		
	big confusions	in selecting a carrie	r or understanding a job	role.	1.77 . 1		
	• And most impo	ortantly, demystifyii	ng Hadoop vendors like	Cloudera, MapR	and Hortonworks		
11	by understandin	ng about them.					
11	List of Experimen	us Uadaan					
	Introduction to	Hadoop					
$\frac{2}{2}$	Hadoop Distributed File System						
3.	Hadoop Architecture						
4.	MapReduce & HDFS Hadoop Eco Systems						
5.	Introduction to Pig						
6.	Introduction to	HIVE					
/.	Introduction to	HBase	1				
8.	Other eco syste	m Map Hadoop De	veloper				
9.	Moving the Data into Hadoop						
10	Moving The Da	ata out from Hadoop					
	Reading and W	riting the files in H	DFS using java program				
12	The Hadoop Ja	va API for MapRed	uce o Mapper Class o Re	educer Class o Dri	ver Class		
13	Writing Basic I	Writing Basic MapReduce Program In java					

- Understanding the MapReduce Internal Components 14.
- 15. Hbase MapReduce Program
 12. Brief Description of self-learning / E-learning component <u>https://www.vlab.co.in/</u>

BCA

2. Course Name Web Programming L T P 3. Course Code 13450503 4 0 0 4. Type of Course (use tick mark) Core (\checkmark) PE() OE () 5. Pre-requisite (if any) 6. Frequency (use tick marks) Even (\checkmark') Odd () Either Every Sem () 7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Even Sem () Sem () Sem () 8. Course Description Tutorials = 0 Practical = 0 Practical = 0 Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages format a simple Web page using Cascading Style sheets state the concepts applicable to web programming; represent data over the Web using XMU					
ProgrammingLII3. Course Code134505034004. Type of Course (use tick mark)Core (\checkmark)PE()OE ()5. Pre-requisite (if any)6. Frequency (use tick marks)Even Odd ()Either Sem ()7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)Sem ()1. Lectures = 48Tutorials = 0Practical = 08. Course DescriptionSkill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages.9. Learning objectives: After going through this course a student should be able to: • Use XHTML tags to create simple static web pages • format a simple Web page using Cascading Style sheets • state the concepts applicable to web programming; represent data over the Web using WM					
3. Course Code134505034004. Type of Course (use tick mark)Core (\checkmark)PE()OE ()5. Pre-requisite (if any)6. Frequency (use tick marks)EvenOdd ()Either (\checkmark)Every Sem ()7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)Eetures = 48Tutorials = 0Practical = 08. Course DescriptionSkill development in web programming including mark-up and scripting languages.Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages.9. Learning objectives: After going through this course a student should be able to: • Use XHTML tags to create simple static web pages • format a simple Web page using Cascading Style sheets • state the concepts applicable to web programming; represent data over the Web using VMU					
3. Course Code 13450503 4 0 0 4. Type of Course (use tick mark) Core (✓) PE() OE () 5. Pre-requisite (if any) 6. Frequency (use tick marks) Even Odd () Either sem () Every Sem () 7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Lectures = 48 Tutorials = 0 Practical = 0 8. Course Description Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: • Use XHTML tags to create simple static web pages • format a simple Web page using Cascading Style sheets • state the concepts applicable to web programming; represent data over the Web using XMU					
4. Type of Course (use tick mark) Core (✓) PE() OE () 5. Pre-requisite (if any) 6. Frequency (use tick marks) Even Odd () Either Every 3. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Sem () ✓) Sem () 7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Iterus Even Odd () Either Sem () 8. Course Description Tutorials = 0 Practical = 0 Practical = 0 Iterus Sem () Sem () 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages Iterus to create simple static web pages Iterus to create simple static web pages Sem () Sem () 9. Learning objectives: After going through this course a student should be able to: Iterus to create simple static web pages Sem () Sem () 9. state the concepts applicable to web programming; represent data over the Web using VMU VMU Sem () Sem ()					
 5. Pre-requisite (if any) 6. Frequency (use tick marks) Even Odd () Either Sem () Sem () <l< th=""></l<>					
any)tick marks)Sem ()Sem ()7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)Lectures = 48Tutorials = 0Practical = 08. Course DescriptionSkill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages.9. Learning objectives: 					
7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Lectures = 48 Tutorials = 0 Practical = 0 8. Course Description Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages • format a simple Web page using Cascading Style sheets • state the concepts applicable to web programming; represent data over the Web using YMU					
 7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester) Lectures = 48 Tutorials = 0 Practical = 0 8. Course Description Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages format a simple Web page using Cascading Style sheets state the concepts applicable to web programming; represent data over the Web using YMU 					
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 8. Course Description Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages format a simple Web page using Cascading Style sheets state the concepts applicable to web programming; represent data over the Web using XML 					
 Skill development in web programming including mark-up and scripting languages. Introduction to structure and object oriented programming design. Course includes use of XHTML and JavaScript programming languages. 9. Learning objectives: After going through this course a student should be able to: Use XHTML tags to create simple static web pages format a simple Web page using Cascading Style sheets state the concepts applicable to web programming; represent data over the Web using 					
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 format a simple Web page using Cascading Style sheets state the concepts applicable to web programming; represent data over the Web using XMU 					
• state the concepts applicable to web programming; represent data over the Web using					
XZN AT					
XML					
• appreciate the use of Rich Internet Applications, and perform server side scripting using					
Java Server Pages (JSP).					
10. Course Outcomes (COs):					
• 1. To get familiar with the concept of Search Engine Basics.					
To gain knowledge of Rich Internet Application Technologies					
To Learn Web Service Essentials					
To learn different web programming languages					
• To be familiarized with Web Analytics 2.0, Web 3.0 and Semantic web standards.					
11. Unit wise detailed content					
Unit-1 Number of					
lectures = 12					

Web 2.0 and XHTML : What IsWeb 2.0? Introduction toWeb 2.0 terms: Search, Content Networks, Blogging, Social Networking, Social Media, Rich Internet Applications (RIAs), Web Services, Mashups, Widgets and Gadgets, Introduction to XHTML and WML, Syntactic Differences between

HTML and XHTML, Standard XHTML Document Structure, An example of XHTML covering Basic Syntax, Images, Hypertext Links, Lists and Tables, Creation of an XHTML Form, Internal Linking and Meta Elements.

Using Style Sheets : CSS: Inline Styles, Embedded Style Sheets, Linking External Style Sheets, Style Specification Formats Selector Forms, Colour, Property Value Forms, Font Properties, List Properties, Alignment of Text, The Box Model, Background Image ,The and <div> Tags.

Unit – 2	Number of	
	lectures = 12	

Introduction to XML : XML Basics, XML Document Structure, XML Namespaces, Document Type Definitions, XML Schemas, Displaying XML Documents.

Introduction to WAP and WML : WAP and WML Basics, WML formatting and links, , WML variables, Example.

Unit – 3	Number of	
	lectures = 12	

JSP – **Basic :** Basic JSP Lifecycle, JSP Directives and Elements, Scriptlets, Expressions, Action Elements, Standard Actions, Comments and Template Data, JSP variables, The out Object, Request, response, sessions and application objects.

JSP Application Development : Example applications using JSP, What is JDBC? Need for JDBC, Database Drivers, Connection using JDBC API.

Unit – 4	Number of	
	lectures = 12	

The Server Side Scripting : Server side scripting and its need ,Two-Tier, Three-Tier, N-Tier and Enterprise Architecture, Various Languages/ Technologies for server scripting ,HTTP Methods (such as GET, POST, HEAD, and so on) , Purpose ,Technical characteristics, Method selection, Use of request and response primitives, Web container – Tomcat.

12. Brief Description of self-learning / E-learning component https://elearning.sgtuniversity.ac.in/course-category/Web Programming

13. Books Recommended

Text Books

Mastering HTML, CSS & Javascript Web Publishing by Lemay Laura

Reference Books

- 1. XHTML Black Book by Steven Holzner, 2000.
- 2. CGI Programming on the World Wide Web. O'Reilly Associates.
- 3. Web Technologies By Achyut S Godbole, Atul Kahate, 2003, T.M.H.
- 4. Scott Guelich, Shishir Gundararam, Gunther Birzniek; CGI Programing with Perl 2/e O'Reilly.
- 5. Doug Tidwell, James Snell, Pavel Kulchenko; Programming Web services, O'Reilly
- 6. Intranets by James D.Cimino, 1997, Jaico Publ.
- 7. Internet and Web Technologies Raj Kamal, 2002, T.M.H.

1.	Name of the Depa	rtment- Computer	Science & Engineering	3		
2.	Course Name	Web				
		Programming	L	Т	Р	
		Lab				
3.	Course Code	13450506	0	0	4	
			-			
4.	Type of Course (u	se tick mark)	Core (✓)	PE() OE ()		
5.	Pre-requisite (if		6. Frequency (use	Even Odd ()	Either Every	
	any)		tick marks)		Sem () Sem ()	
				(*)		
7.	Total Number of I	Lectures, Tutorials	, Practical (assuming 1	2 weeks of one se	mester)	
Le	ctures = 0	ures = 0 Tutorials = 0 Practical = 48				
8.	Course Descriptio	n				
	Skill development	in web programmin	g including mark-up and	scripting languag	es. Introduction	
	to structure and obj	ject oriented program	nming design. Course in	cludes use of		
	XHTML,XML,XH	TML.				
9.	Learning objectiv	es:				
	• The course will	l give you a ground	ling in the nuts and boly	ts of the tags, scri	pt, and code that	
	the web and w	eb nages work. Thi	s knowledge will allow	you to build on the	he skills you will	
	have and to und	lerstand the potentia	als and limitations placed	l on writing for we	eb pages.	
10.	Course Outcomes	(COs):	^	-		
	• write well-struc	ctured, easily mainta	ained, standards-complia	nt, accessible HTM	AL code.	
	• write well-struc	ctured, easily mainta	ained, standards-complia	nt CSS code to pre	esent HTML	
	pages in differe	ent ways.				
	• use JavaScript	to add dynamic cont	tent to pages.			
	• critique JavaSc	ript code written by	others, identifying exam	ples of both good	and bad practice.	
	-				-	
11.	List of Experimen	its				
Cre	eate a Web Page usi	ng basic tags in htm	15			
Wı	ite a program to cre	ate all types of list i	n HTML			
Cre	eate a table using Ht	ml 5 and CSS				
Wı	ite a program using	labels, radio button	s, and submit buttons			
Cre	eate a simple webpa	ge using HTML				
Us	Use frames to Include Images and Videos.					

Add a Cascading Style sheet for designing the web page. List the features of at least 5 Web 2.0 technologies

How to make all fields of a form mandatory in java script

Create a registration form and validate it using java script

Write a program to maintain session in PHP

Perform data base connectivity in PHP

Create a dynamic web page using PHP

web browser display About Us option

gecreating style sheets for web pages

Design a web page with validation using JavaScript.

1. Name of the Depa	rtment- Computer	Science & Engineering	5			
2. Course Name	IoT development application of Cloud	L	ТР		2	
3. Course Code		2	0 2			2
4. Type of Course (u	se tick mark)	Core (✓)	PE() OE ()			E ()
5. Pre-requisite (if any)		6. Frequency (use tick marks)	Even	Odd () (•	Either Sem ()	Every Sem ()
7. Total Number of	Lectures, Tutorials	, Practical (assuming 1	2 weeks	of one se	mester)	
Lectures = 24		Tutorials = 0	Practica	al = 0		
8 Course Descriptio	n					
The course presents a	n top-down view of Ia	T development applicat	ion of Clo	oud from	applicati	ions and
administration to progr	cop down view of R	ructure. Its main focus is	s on paral	lel progra	amming	
techniques for IoT dev	elopment applicatio	n of Cloud and large sca	le distribi	uted syste	ems which	h form
the cloud infrastructure	e.			j		-
9. Learning objectiv Design and develop ele	es: egant and flexible cl	oud software solutions.				
Manage and deploy a c	cloud based applicat	ion.				
Research and critique a	a topic related to So	ftware development in th	ne cloud.			
Analyze a real world p	roblem and develop	a cloud based software	solution.			
10. Course Outcomes	(COs):					
IoT developme privacy, and integrity	nt application of Cle teroperability.	oud explain the core issu	es of Clo	ud such a	is security	/,
• IoT choose the	appropriate technol	ogies, algorithms, and ap	oproaches	for the r	elated iss	ues.
• IoT identify	problems, and ex	plain, analyze, and e	valuate	various I	oT deve	lopment
applications an	d solutions.					
11. Unit wise detailed	content	I				
Unit-1	Number of lectures = 06					
Cloud Based Application for the cloud. Public popular APIs, mobile.	ions: Introduction, C c vs private cloud aj	Contrast traditional softv	vare deve id ecosyst	lopment tems – w	and deve hat is Saa	lopment S/PaaS,

Unit – 2	Number of	
	lectures = 06	

Designing code for the Cloud: Class and Method design to make best use of the Cloud infrastructure; Web Browsers and the Presentation Layer: Understanding Web browsers attributes and differences. Building blocks of the presentation layer: HTML, HTML5, CSS, Silver light, and Flash.

Unit – 3	Number of	
	lectures = 06	

Web Development Techniques and Frameworks: Building Ajax controls, introduction to Javascript using JQuery, working with JSON, XML, REST. Application development Frameworks e.g. Ruby on Rails, .Net, Java API's or JSF; Deployment Environments – Platform As A Service (PAAS), Amazon, vmForce, Google App Engine, Azure, Heroku, AppForce

Unit – 4	Number of
	lectures = 06

Building an Application using the LAMP stack: Setting up a LAMP development environment. Building a simple Web app demonstrating an understanding of the presentation layer and connectivity with persistance.

12. Brief Description of self-learning / E-learning component

https://elearning.sgtuniversity.ac.in/course-category/IoT development application of Cloud

13. Books Recommended Text Books

Chris Hay, Brian Prince, Azure in Action [ISBN: 978-1935182481] Henry Li, Introducing Windows Azure [ISBN: 978-1-4302-2469-3]

Reference Books

Paul J. Deitel, Harvey M. Deitel 2008, Ajax, rich Internet applications, and web development for programmers, Prentice Hall Upper Saddle River, NJ [ISBN: 978-013-158738-0]

1. Name of the Department- Computer Science & Engineering						
2. Course Name	IoT development					
	application of	т	Т	D		
	Cloud Lab	L	I	1		
3. Course Code		0	0	2		
4. Type of Course (u	se tick mark)	$\frac{\text{Core}\left(\checkmark\right)}{\left(\checkmark\right)}$	PE() OE ()			
5. Pre-requisite (if		6. Frequency (use	Even Odd ()	Either Every		
any) 7 Total Number of I	[actures Tutorials	UCK Marks)	(\mathbf{v}) Sem () Sem () Sem () 12 weeks of one semester)			
7.1000000000000000000000000000000000000	Lectures, rutoriais	, Tractical (assuming 1) Tutorials – 0	2 weeks of one se	illester)		
8 Course Descriptio	'n	1 utor rais = 0	1 factical – 24			
In this, new Design	n and Development	of application on Cloud	Lab technologies	to bring out		
innovative and nov	innovative and novelistic solutions for the growth of the society in all aspects and evolving into					
their continuous pr	ofessional developm	nent.		6		
9. Learning objectiv	es:					
Design and develop ele	egant and flexible cl	oud software solutions.				
Manage and deploy a c	cloud based applicat	ion.				
Research and critique a	a topic related to Sol	ftware development in th	ne cloud.			
Analyze a real world p	roblem and develop	a cloud based software	solution.			
10. Course Outcomes	(COs):					
IoT developme	nt application of Clo	oud explain the core issu	es of Cloud such a	s security,		
privacy, and int	teroperability.			•		
• IoT choose the	appropriate technol	ogies, algorithms, and ap	pproaches for the r	elated issues.		
• IoT identify	problems, and ex	plain, analyze, and e	valuate various I	oT development		
applications and	d solutions.					
11. List of Experimen	its					
Study how to manage of	cloud computing res	ources.				
Study about existing cl	oud characteristics	and service models.				
Performance evaluation	n of services over a	oud				
		ouu.				
Case Study: Google ap	p engine and Micro	soft azure.				
Setting up a LAMP	development envir	onment. Building a sin	mple Web app d	lemonstrating an		
understanding of the pr	resentation layer and	l connectivity with persi	stance.			
Design develop test	and danlass an arri	instion in the aloud wat	ing a davalanman	t fromovious and		
Design, develop, test	and deploy an appl	incation in the cloud usi	ing a developmen	i framework and		
deployment platform.						
Analyze a real world n	roblem and develop	a cloud/LAMP based so	oftware solution			
	i contra de contra					

Contrast software development in the web, cloud and others.

12. Brief Description of self-learning / E-learning component

https://www.vlab.co.in/

BCA

1.	1. Name of the Department- Computer Science & Engineering						
2.	Course Name	Minor Project	L	T P			
3.	Course Code	13450505	0	0 4		4	
4.	Type of Course (u	se tick mark)	Core (✓)	PE()		OE ()	
5.	Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every
	any)		tick marks)		(🗸)	Sem ()	Sem ()
7.	Total Number of	Lectures, Tutorials	, Practical (assuming 1	2 weeks	of one se	mester)	
Le	ctures = 0		Tutorials = 0	Practical = 48			
8.	Course Description	n					

The purpose of the Minor Project is for the students to apply theoretical knowledge acquired during the Data Science program to a project involving actual data in a realistic setting.

9. Learning objectives:

Capstone projects are generally designed to encourage students to think critically, solve challenging problems, and develop skills such as oral communication, public speaking, research skills, media literacy, teamwork, planning, self-sufficiency, or goal setting

10. Course Outcomes (COs):

Integration. Students have integrated and/or applied what they have learned in their general education and major/minor coursework (and co-curricular activities, as appropriate).

11. List of Experiments

(GUIDELINES FOR MINOR PROJECT)

The aim of the Minor Project(s) is to lay a foundation for Major Project to be carried out by the student during 6th Semester of BCA Programme.

Each student should carry out Minor Project(s) using the software development tools/languages/technologies that they have learnt and/or have studied during the concerned semester.

It should be compulsorily done by the student in-house under the supervision of the staff(s) assigned by Head of the Department/Director/Principal.

The Minor Project(s) will be assessed by the concerned supervisor(s) and shall award marks out of 25 for each student as Internal Assessment.

12. Brief Description of self-learning / E-learning component

https://capstones.utah.edu/capstone-learning-outcomes/

1. Name of the Departme	nt- Computer	Science & Engineering	5			
2. Course Name S	EMINAR	L	Т		I	•
3. Course Code		0	0		4	
4. Type of Course (use tic	k mark)	Core (✓)	PE()		OE ()	
5. Pre-requisite (if		6. Frequency (use	Even	Odd	Either	Every
any)		tick marks)	0	(•)	Sem ()	Sem ()
7. Total Number of Lectu	res, Tutorials	, Practical (assuming 1	2 weeks	of one se	mester)	
Lectures = 48		Tutorials = 0	Practical = 0			
8. Course Description						
Industry Seminar Industry s software development whic students to face interviews report. The following points	eminars are such thare going o with some con are listed to er	ggested to enable the stu n in industries in India fidence. The students sl nable the college to orga	idents of . These s nould atte nize these	BCA to a seminars and these e seminar	appreciate will help and subn s.	e the the nit a

BCA

1.	Name of the Depa	rtment- Computer	Science & Engineering				
2.	Course Name	Artificial Intelligence	L	T P			
3.	Course Code	13450601	4	0		0	
4.	Type of Course (u	se tick mark)	Core (✓)	PE ()		OE ()	
5.	Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every
	any)		tick marks)	(✓)		Sem ()	Sem ()
7.	Total Number of	Lectures, Tutorials	, Practical (assuming 1	2 weeks	of one se	mester)	
Le	ctures = 48		Tutorials = 0	Practic	al = 0		
8	Course Description	n					

Artificial intelligence (AI) is a research field that studies how to realize the intelligent human behaviors on a computer. The ultimate goal of AI is to make a computer that can learn, plan, and

solve problems autonomously.

9. Learning objectives:

AI must improve with the progression of time and technology.

AI must evolve in a direction that the masses demand.

AI must have a mechanism whereby it can be reliably patched/updated, once it has been installed on a user's PC.

AI must be developed in a modular fashion, by different contributors, where modules can be removed, added, modified and interchanged where necessary.

AI's 'consciousness' must be fully transferable from PC to PC, to home/building, to car/vehicle, to robot.

10. Course Outcomes (CO):

Apply the basic principles, models, and algorithms of AI to recognize, model, and solve problems in the analysis and design of information systems. analyze the structures and algorithms of a selection of techniques related to searching, reasoning, machine learning, and language processing.

11. Unit wise detailed	content
Unit-1	Number of
	lectures = 12

Overview of A.I: Introduction to AI, Importance of AI, AI and its related field, AI techniques, Criteria for success. Problems, problem space and search: Defining the problem as a state space search, Production system and its characteristics, Issues in the design of the search problem Heuristic search techniques :Generate and test, hill climbing, best first search technique, problem reduction, constraint

satisfaction.					
Unit – 2	Number of				
	lectures = 12				
Knowledge represen	ntation: Definitio	on and importance of knowledge, Knowledge			
representation, various	approaches used	in knowledge representation, Issues in knowledge			
representation Using H	Predicate Logic: Re	present ting Simple Facts in logic, Representing instances			
and is a relationship, C	computable function	and predicate.			
Unit – 3	Number of				
	lectures = 12				
Expert System: Introdu	iction, Representing	using domain specific knowledge, Expert system shells.			
LISP and other AI Prog	gramming Language	e Natural language processing.			
Unit – 4	Number of				
	lectures $= 12$				
Introduction syntactic	processing Sem	antic processing Discourse and pragmatic processing			
Learning: Introduction	learning Rote learn	and processing, Discourse and pragmatic processing			
Learning. Introduction	learning, Rote learn	ing.			
12. Brief Description	of self-learning / E	-learning component			
https://elearning.sotuni	versity ac in/course	-category/Artificial Intelligence			
https://eleaning.sgtuin	versity.de.in/course	<u>eacegory</u> and menigenee			
13 Rooks Docommon	dod				
13. Books Recommen Text Books	ded				
13. Books Recommen Text Books	ded				
13. Books Recommen Text Books D.W. Patterson, "Introd	ded duction to AI and E	xpert Systems", PHI, 2019			
13. Books Recommen Text Books D.W. Patterson, "Introd	ded duction to AI and E	xpert Systems", PHI, 2019			
13. Books RecommenText BooksD.W. Patterson, "IntrodReference BooksNils J Nilsson, "Artific	ded duction to AI and E:	xpert Systems", PHI, 2019 new Synthesis" New Edition (2018) Harcourt Asia Ltd			
13. Books RecommenText BooksD.W. Patterson, "IntrodReference BooksNils J Nilsson ,"Artific	ded duction to AI and Ez ial Intelligence -A r	xpert Systems", PHI, 2019 new Synthesis" New Edition (2018), Harcourt Asia Ltd.			

1.	Name of the Depa	rtment- Computer	Science & Engineering	g			
2.	Course Name	Artificial		2			
		Intelligence Lab	L	ſ	ſ	I	2
3.	Course Code	13450604	0	()	4	1
4.	Type of Course (u	se tick mark)	Core (✓)	PF	EO	OF	E ()
5.	Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every
	any)		tick marks)	(✔)		Sem ()	Sem ()
7.	Total Number of I	Lectures, Tutorials	, Practical (assuming 1	2 weeks o	of one set	mester)	
Le	ctures = 0		Tutorials = 0	Practica	al = 48		
9. AI AI	Artificial intelligen behaviors on a com solve problems auto Learning objective must improve with must evolve in a dir	ce (AI) is a research puter. The ultimate onomously. es: the progression of ti rection that the mass	n field that studies how to goal of AI is to make a c ime and technology. ses demand.	o realize t computer	he intelli that can	gent hum learn, pla	an n, and
AI	I must have a mechanism whereby it can be reliably patched/updated, once it has been installed on a						
user's PC.							
AI	must be develope	d in a modular fa	shion, by different cor	ntributors.	where	modules	can be
ren	noved, added, modif	fied and interchange	d where necessary.		,		
Aľ	s 'consciousness' m	ust be fully transfe	rable from PC to PC. to	o home/b	uilding	to car/vel	nicle to
rot	ot.	,			<i></i> ,		,
10.	Course Outcomes	(CO):					
Ap the tec	ply the basic princip analysis and design hniques related to se	bles, models, and alg of information syst earching, reasoning,	gorithms of AI to recogn tems. analyze the structu machine learning, and la	ize, mode res and al anguage p	l, and sol gorithms processin	lve proble of a sele g.	ems in ction of
11.	List of Experimen	ts					
Lis Stu W1 Sol Sol Sol Sol Sol No At	t of programs to be dy of PROLOG. ite a program to sol- ve any problem usin ve any problem usin ve 8-puzzle problem ve Robot (traversal) ve traveling salesma te: least 5 to 10 more e	developed using Prove 8 queens problem ng depth first search ng best first search. n using best first search.) problem using mea an problem. xercises to be given	olog: n. a. arch ans End Analysis. by the teacher concerne	d.			
	- p	• /					
	nttps://www.vlab.c	<u>0.1n/</u>					

BCA

1.	Name of the Depa	Name of the Department- Computer Science Engineering					
2.	Course Name	ARDBMS	L	Т		Р	
3.	Course Code	13450602	3	0		2	
4.	Type of Course (u	se tick mark)	Core (✓)	PE()		OE ()	
5.	Pre-requisite (if any)	Workshop Technology	6. Frequency (use tick marks)	Even (✓)	Odd ()	Either Sem ()	Every Sem ()
7.	Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)						
Le	ctures = 36		Tutorials = 0	Practic	al = 0		

8. Course Description

The course, Database Management Systems, provides an introduction to the management of

database systems. The course emphasizes the understanding of the fundamentals of relational systems including data models, database architectures, and database manipulations. The course also provides an understanding of new developments and trends such as Internet database environment and data warehousing. The course uses a problem-based approach to learning

9. Learning objectives:

- To understand the different issues involved in the design and implementation of a database system.
- To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
- To understand and use data manipulation language to query, update, and manage a database
- To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency, distributed database, and intelligent database, Client/Server (Database Server), Data Warehousing.
- To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS

10. Course Outcomes (COs): On completion of the course,

- 1. For a given query write relational algebra expressions for that query and optimize the developed expressions
- 2. For a given specification of the requirement design the databases using E-R method and normalization.
- 3. For a given query optimize its execution using Query optimization algorithms

11. Unit wise detaile	. Unit wise detailed content						
Unit-1	Number of						
	lectures = 09						

Introduction: Overview of Database Management System: Various views of data Models, Schemes and Introduction to database Languages & Environments, Advantages of DBMS over file processing systems, Responsibility of Database Administrator. Three level architecture of Database Systems: Introduction to client/Server architecture. Data Models: E-R Diagram (Entity Relationship), mapping Constraints, keys, Reduction of E-R diagram into tables.

Unit – 2 Number of
lectures =

Network & Hierarchical Models, File Organization: Sequential File, index sequential files, direct files, Hashing, B-trees Index files, Inverted Lists, Relational Models, Relational Algebra & various operations (set operations, select, project, join, division), Order, Relational calculus: Domain, Tuple, Well Formed Formula, specification, quantifiers, Introduction to Query Language, QBE

Unit – 3	Number of
	lectures = 09

Integrity constrains, functional dependencies & Normalization, 1st, 2nd, 3rd and BCNF. Introduction to Distributed Data processing, Concurrency control: Transactions, Time stamping, Lock-based Protocols.

Unit – 4	Number of	
	lectures = 09	

Database recovery. Database Security: Authentication, Authorization and access control, DAC, MAC and RBAC models

12. Brief Description of self-learning / E-learning component

https://elearning.sgtuniversity.ac.in/course-category/ ARDBMS

13. Books Recommended

Text book:

1. "Database System Concepts", 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill.

Reference books:

1 "Principles of Database and Knowledge – Base Systems", Vol 1 by J. D. Ullman, Computer Science Press.

2 "Fundamentals of Database Systems", 5th Edition by R. Elmasri and S. Navathe, Pearson Education

3 "Foundations of Databases", Reprint by Serge Abiteboul, Richard Hull, Victor Vianu, Addison-Wesley

1. Name of the Department- Computer Science & Engineering						
2. Course Name	ARDBMS lab	L	Т		I	
3. Course Code	13450605	0	0		2	2
4. Type of Course (u	ise tick mark)	Core (✓)	PE(C	OF	ΕO
5. Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every
any)		tick marks)	(•)		Sem ()	Sem ()
7. Total Number of	Lectures, Tutorials	s, Practical (assuming 1	2 weeks of	f one se	mester)	
Lectures = 0	,	Tutorials = 0	Practical	= 24	,	
8. Course Description) n vage To dogoriho tho	having of SOL and const	munt autoria	aucina	501	
9. Learning objectiv	$(\mathbf{CO}_{\mathbf{s}})$	basics of SQL and const	luct queries	s using .	SQL.	
Upon completion of th	e course the studen	ts acquire the knowledge	to build the	he logic	and deve	lon a
solution for a problem	statements	tis acquire the knowledge		ne iogie	und deve	iop u
11. List of Experimen	nts					
1. Creating Database						
i. Crea	ating a Database					
ii. Crea	ating a Table					
iii. Spe	iii. Specifying Relational Data Types					
2. Table and Record I	Handling					
1. INS	SERT statement	CEDT to goth on				
	IS SELECT AND IN	SEKI logelner				
iv DR	$OP \Delta I TFR statem$	nunca i E statements				
3. Indexes	OI, TETER statem					
Create index, Drop	Index and unique of	option				
4. Integrity Constrain	ts	1				
Primary Key, Refe	rential, Domain and	d Check Constraints				
5. Retrieving Data fro	om a Database					
i. The	SELECT statemen	t				
ii. Usii	ng the WHERE clau	ise				
iii. Usii	ng Logical Operator	rs in the WHERE clause				
6. SQL functions	. SQL functions					
7. Advanced SQL fur	Advanced SQL functions					
8. Using IN, BETWE	EN, LIKE (pattern	matching) operator				
9. GROUP BY and C	GROUP BY functio	ns				
10. Sub queries, Basic, 11. Retrieving data fro	, multiple column, s m multiple columns	ub queries with having, o	correlated s	sub quer	ries	
Joining table (Inne	r Join, Outer Join, E	Equi Join, Non-Equi join)	, Aliasing	for tabl	e name	

12. Brief Description of self-learning / E-learning component http://vlabs.iitb.ac.in/bootcamp/labs/dbms/exp8/exp/index.php

BCA

1.	Name of the Depa	rtment- Computer	Science & Engineering	g			
2.	Course Name	Enterprise					
		Mobile	т	r	г		
		Application	L		1	1	
		Development					
3.	Course Code	13450603	2		0	2	2
4.	Type of Course (u	se tick mark)	Core (✓)	Pl	E() OE ()		
5.	Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every
	any)		tick marks)	(🗸)		Sem ()	Sem ()
7.	Total Number of	Lectures, Tutorials	, Practical (assuming 1	2 weeks	of one set	mester)	
Le	ctures = 24		Tutorials = 0	Practic	al = 0		
8.	Course Description	n					
En	terprise mobile app	development requi	res attention as well as	mobile d	levices. N	Iobile Er	nterprise

Application Platform tends to simplify the development process of enterprise software for employees who use various mobile devices. The main peculiarity of the MEAP platform is a cross-platform feature.

9. Learning objectives:

A mobile application provides a platform to companies by which they can get engaged with their customers in real-time.

By developing a mobile app, you can give your customers simpler and more efficient platform to use your products or services..

You can increase your business by promoting it by offering coupons

Through a mobile app, a customer can order any of your product or service

10. Course Outcomes (COs):							
Ability to apply general programming knowledge in the field of developing mobile applications.							
Understanding of the specific requirements, possibilities and challenges when developing for							
a mobile context.							
11. Unit wise detailed content							
Unit-1 Number of							
lectures = 06							

Mobile Device : Mobile Phone Evolution, Mobile Handset Characteristics, Bluetooth , Display, Keypad, Camera, Mobile Handset Categories, Handset Components, Handset Design, Handset hardware architecture, Elements inside a Mobile Handset, Hardware Architecture Evolution, Hardware architectural trends, CPU and Memory, Internal storage, Handset Power Oberoi

Unit – 2	Number of	
	lectures = 06	

Mobile Application Development - Mobile Application Development Paradigm, Mobile Programming Tools, Mobile Application Evolution, Thin Client, Fat Client, Future of Mobile App Development, Mobile Client Server App Architecture, Mobile App Programming in different languages, Mobile Programming best practices, Pros and Cons of Mobile Web App, SIM based Mobile App Development, SIM as a Platform, SIM as Service Differentiator.

Unit – 3	Number of
	lectures = 06

Web Application - World Wide Web, Web Application, Web Application Architecture, Web Server, Web Server Features, Web Application Server, Mobile Internet Access, Mobile Web browser Evolution, Mobile Web Development Approaches, Dynamic Content.

Unit – 4	Number of	
	lectures = 06	

Mobile Operating System --Introduction to Mobile Operating Systems and why they are needed, Open Platforms, Mobile OS Features, Symbian, BlackBerry, Android, iOS, Windows, Tizen, Ubuntu, etc.

12. Brief Description of self-learning / E-learning component

https://elearning.sgtuniversity.ac.in/course-category/Enterprise Mobile Application Development

13. Books Recommended Text Books

1. Wireless and Mobile Network Architectures by Yi-Bang Lin and Imrich Chlamtac, Wiley-India, 2020.

2. Mobile Networks Architecture by Andre Perez, Wiley, March 2020.

Reference Books

 Mobile Computing – Technology, Application & Service Creation by Asoke. K Talukder, Roopa R. Yavagal, Asoke K. Talukder, Tata McGraw-Hill, 2019 2. GSM - Architecture, Protocols and Services by Jörg Eberspächer, Hans-JoergV ögel, Christian Bettstetter, Christian Hartmann John Wiley & Sons, Dec-2018

1. Name of the Department- Computer Science & Engineering												
2.	Course Name	Enterprise										
		Mobile			Р							
		Application	т	Т								
		Development	L	I								
		Lab										
3.	Course Code	13450606	0	0	2							
4.	Type of Course (u	se tick mark)	Core (✓)	PE()	OE ()							
5.	Pre-requisite (if		6. Frequency (use	Even Odd ()	Either Every							
	any)		tick marks)	(✔)	Sem () Sem ()							
7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)												
Lec	tures = 0		Tutorials = 0	Practical = 24								
 Enterprise mobile app development requires attention as well as mobile devices. Mobile Enterprise Application Platform tends to simplify the development process of enterprise software for employees who use various mobile devices. The main peculiarity of the MEAP platform is a cross-platform feature. 9. Learning objectives: A mobile application provides a platform to companies by which they can get engaged with their customers in real-time. By developing a mobile app, you can give your customers simpler and more efficient platform to use your products or services You can increase your business by promoting it by offering coupons 												
Thr	ough a mobile app,	a customer can ord	er any of your product of	r service								
10. Course Outcomes (COS): Ability to apply general programming knowledge in the field of developing mobile applications												
Ability to apply general programming knowledge in the field of developing mobile applications.												
a mobile context												
a model context.												
Note: Practical exercises will be done as per theory syllabus. 12. Brief Description of self-learning / E-learning component												
https://www.vlab.co.in/												

BCA

1. Name of the Department- Computer Science & Engineering											
2.	Course Name	Major Project	L	Т		Р					
3.	Course Code	13450607	0	0		8					
4.	Type of Course (use tick mark)		Core (✓)	PE()		OE ()					
5.	Pre-requisite (if		6. Frequency (use	Even	Odd ()	Either	Every				
	any)		tick marks)	(✔)		Sem ()	Sem ()				
7. Total Number of Lectures, Tutorials, Practical (assuming 12 weeks of one semester)											
Lectures = 0			Tutorials = 0	Practical = 96							
8. Course Description											

The purpose of the Major Project is for the students to apply theoretical knowledge acquired during the Data Science program to a project involving actual data in a realistic setting.

9. Learning objectives:

Capstone projects are generally designed to encourage students to think critically, solve challenging problems, and develop skills such as oral communication, public speaking, research skills, media literacy, teamwork, planning, self-sufficiency, or goal setting

10. Course Outcomes (COs):

Integration. Students have integrated and/or applied what they have learned in their general education and major/minor coursework (and co-curricular activities, as appropriate).

11. List of Experiments

(GUIDELINES FOR MAJOR PROJECT)

The aim of the Major Project is to lay a foundation after 6th Semester of BCA Programme.

Each student should carry out Major Project using the software development tools/languages/technologies that they have learnt and/or have studied during the concerned semester.

It should be compulsorily done by the student in-house under the supervision of the staff(s) assigned by Head of the Department/Director/Principal.

The Major Project will be assessed by the concerned supervisor(s) and shall award marks out of 25 for each student as Internal Assessment.

12. Brief Description of self-learning / E-learning component

https://capstones.utah.edu/capstone-learning-outcomes/