Name of Paper &		Domari Ca J				Т	Theory			
Cate	egory	Paper Code		Cred	it		Marks			
Big Data Analytics (Major-core)			L	T	J	EST	CAT	To	otal	
		BAI-701	3	1	0	70	30	100		
Course datasets using				anced data	techni proce	iques and tools in	to proficiently as Big Data analytics learning, and dec	s, fostering	g a deep	
Units	Contents (Theory)						Hour /weel			
I	unstruct	ured data, indu				•	onvergence of key	big data	8	
						opensource tech nter and trans fire	nnologies, mobile wall analytics.	business		
II	NoSQL value and database	Data Manager document	nent ata	analy Intro model ews –	oductions -rel	on to NoSQL – ag ationships – grap ibution models –		els – key- hemaless ication –	8	
II	NoSQL value and database consister clients. Basics of streaming concepts	Data Manager and document does — materialized ancy — Cassandr and Hadoop: Data and — Hadoop pips — Java interface	nent lata i lata vi la – (analy Intro model ews – Cassar mat – lesign data f	oductics, i oductics - reloductics - distraction dra danalyza of Ha	on to NoSQL – agationships – grapibution models – lata model -Cassalzing data with Hadadoop distributed f	ggregate data mode oh databases – sc master-slave repli	els – key- hemaless ication – Cassandra – Hadoop – HDFS ression –	8	
	NoSQL value and database consister clients. Basics of streamin concepts serializa Hadoop Hbase en	Data Manager and document des — materialize ancy — Cassandr def Hadoop: Data ag — Hadoop pips — Java interfaction — Avro — fit of Related Tools amples — praxi	ment data i data vi aa form ees -d ee - le-ba :: Hb	g analy model ews – Cassar mat – lesign data f ased da	oductics, i oductics -rel- distradra d analyzof Ha llow -lata stru- data 1	on to NoSQL – agationships – grapibution models – ata model -Cassarzing data with Haddoop distributed fradoop I/O – data uctures -Cassandra model and implement	gregate data mode oh databases – sc master-slave replindra examples – Coloop – scaling out – file system (HDFS) a integrity – compara – Hadoop integratementations – Hbase	els – key- hemaless ication – Cassandra – Hadoop – HDFS ression – tion.		
III	NoSQL value and database consister clients. Basics of streaming concepts serializa Hadoop Hbase end Pig – Gr Hive –	Data Manager and document docu	ment ata i ad vi a a form a form cee -de-ba :: Hb	g analy g anal	oductics, i oductics - reladistrated analyzing of Hallow - data 1	on to NoSQL – agationships – grapibution models – lata model -Cassarzing data with Hadidoop distributed for Hadoop I/O – data uctures -Cassandra model and implement – developing and	ggregate data mode oh databases – scomaster-slave replandra examples – Coloro – scaling out – Gile system (HDFS) a integrity – compan – Hadoop integrate	els – key- hemaless ication – Cassandra - Hadoop	8	

Text Books/ Reference Books:-									
Nan	ne of Authors	Titles of the Book	Edition	Name of the Publisher					
Subhash Seema A	nini Chellappan Acharya	Big Data and Analytics	1 st Edition 1996	Wiley					
Benjami Jenny K	in Bengfort and im	Data Analytics with Hadoop an Introduction for Data Scientists	2016	O'Reilly					
V.K Jaiı	n	Big Data and Hadoop	Khanna Publishing						
COURS	SE OUTCOMES:	Students will be able to		•					
CO1	Describe big data and use cases from selected business domains.								
CO2	Explain NoSQL big data management.								
CO3	Install, configure, Hadoop.	Install, configure, and run Hadoop and HDFS and perform map-reduce analytics using Hadoop.							
CO4	Use Hadoop-relat	ted tools such as HBase, Cassanda	ra, and Pig.						
CO5	Proficient in man	aging and manipulating data using	g Hive and uses of S	Spark.					

Course Objective gives a design ar Units I Data Warehousin OLTP and Data Warehousin STAR Schema: cordinates; tables; Families of Dimension tables; tables; Families of Data Warehousin Highly summarized Architecture model OLAP: Definition		L 3	Cred T	it J	ECE	Marks			
Course Objective This course design are Units I Data Warehousing OLTP and Data Warehousing STAR Schema: complimension tables; tables; Families of Dimension tables; tables; Families of Architecture model IV OLAP: Definition analysis; Hypercub	702		T	J	ECD				
Course Objective This course design are Units I Data Warehousing OLTP and Data Warehousing STAR Schema: complimension tables; tables; Families of Dimension tables; tables; Families of Architecture model IV OLAP: Definition analysis; Hypercub	702	3			EST	Г САТ		Total	
Course Objective gives a design ar Units I Data Warehousing OLTP and Data Warehousing OLTP and Data Warehousing STAR Schema: condition Dimension tables; tables; Families of Data Warehousing Highly summarized Architecture model OLAP: Definition analysis; Hypercub			1	0	70	30	10	00	
I Data Warehousing OLTP and Data Warehousing OLTP and Data Warehousing STAR Schema: condimension tables; tables; Families of Data Warehousing Highly summarized Architecture model OLAP: Definition analysis; Hypercub	compl	ete (descri	ption	about the princip	ware house and oles, used, archite ata ware housing c	ctures, app	_	
II OLTP and Data Warehousin Highly summarized Architecture model OLAP: Definition analysis; Hypercub	nits Contents (Theory)							Hours /week	
II STAR Schema: cor Dimension tables; tables; Families of Data Warehousin Highly summarized Architecture model OLAP: Definition analysis; Hypercub	_	•			_	ots; Benefits; Com	parison of	8	
Highly summarized Architecture model OLAP: Definition analysis; Hypercub	Principles of Dimensional Modeling: Objectives; Requirements to Data Design; STAR Schema: concept of Keys, Advantages. Dimensional Modeling: Updates to the Dimension tables; miscellaneous dimensions; SNOWFLAKE schema; Aggregate fact tables; Families of STARS.								
IV analysis; Hypercub	d, Mei	tadat	a; Ar	chive/	Backup; Manager			8	
								8	
V Data Mining: Definition; Knowledge discovery process (KDP); OLAP vs. Data mining; Data mining vs. Data warehouse; Major data mining techniques; Cluster detection; Decision trees; Memory based reasoning; Neural networks; Genetic algorithms; Applications; Benefits.								8	

Text Bo	Text Books/Reference Books:-									
Name of Authors		Titles of the Book	Edition	Name of the Publisher						
Pieter Adriaans, Dolf & Zantinge		Data mining	1996	Addison Wesley						
Sam Anahory& Dennis Murray		Data Warehousing in real world	1997	Addison Wesley						
Paulraj Ponniah		Data Warehousing: Fundamentals for IT Professionals	2012, Second Edition	Wiley India Pvt Ltd.						
Mark Ha Witten a Frank	•	Data Mining: Practical Machine Learning Tools and Techniques	2011, Third edition	Morgan Kaufmann Publisher						
COURS	SE OUTCOM	ES: Students will be able to								
CO1	Understand the functionality of the various data mining and data warehousing components.									
CO2	Have a deeper understanding of database systems and their underlying theory to be able to improve the decision-making process									
CO3	Compare different approaches of data ware housing and data mining with various technologies.									
CO4	To evaluate	the different models of OLAP and	data preprocess	ing.						
CO5	•	ability to design various algorithms escribe the designing of Data Ware blems.		•						

Name of Paper &		Paper				T	heory				
Cat	egory	Code		Cred	it		Marks				
Research Methodologies (Minor- Research Methodology)			L	T	J EST CAT				Total		
		BAI-703	3	1	0	70	30	10	0		
Cou Obje		Equip student their respective			neces	sary skills to con	duct rigorous and	ethical res	search in		
Units				(Conten	ats (Theory)			Hours /week		
I	of research	ch (qualitative, on Problem I o	quant denti	titative ficati e	e, mixe	ed-methods), Rese	purpose of research arch process and sem formulation, research gaps.	teps.	8		
II		_	•			ign, Survey des	ign, Case study methods.	design,	8		
	consent	h Ethics and L	_			_	ciples in research,				
III	mtenecu	al property righ	ıts an	d plag			ius and euncai c	riearance,	8		
IV	Research planning Writing	n Proposal and and scheduling and Presenti	d Pr , Res	oject ource Resea	Mana alloca	ngement: Research tion and managem Research paper s	h proposal writing	g, Project	8		

Programme:- BCA (AI&DA) Semester – VII wef: July 2025

Na	me of Authors	Titles of the Book	Name of the Publisher		
Ranjit l	Kumar	A Step-by-Step Guide for Beginners" by	2021	SAGE Publications	
C.R. Kothari		Methods and Techniques	2013	New Age International Publishers	
Prasanta Kumar Das		A Step-by-Step Guide for Scientists	2016	Springer	
Deepak Chawla		Concepts and Cases	2016	Vikas Publishing House	
•	e C. Booth, Gregory omb, and Joseph M.	The Craft of Research	2008	University of Chicago Press	
	CE OUTCOMEC.	Students will be able to			
COUR	SE OUTCOMES: S	will be usic to			
COUR CO1		problems and formulate relevan	nt research ques	stions.	
	Identify research p		ppropriate rese	arch methodologies and	
CO1	Identify research p Develop proficient designs to address	problems and formulate relevancy in selecting and designing a	ppropriate rese ves effectively	arch methodologies and	

Address complex research problems in various disciplines.

CO5

Programme:- BCA (AI&DA) Semester – VII wef: July 2025

Name of Paper & Category	y Paper Code		Practical					
Name of Laper & Category	1 aper Code	Credit			Marks			
Programming Lab in Big Data	BAI-704	P	J	ESP	CAP	Total		
Analytics (Major-core)	DAI-704	2	-	70	30	100		

Contents (Practical):

- 1. Installing and configuring the Hadoop frame work. HDFS Commands,
- 2. Map Reduce Program to show the need of combiner
- 3. Map Reduce I/O Formats Text, Key Value
- 4. Map Reduce I/O Formats NLine Multiline
- 5. Installing and Configuring Apache PIG and HIVE
- 6 Sequence File Input / Output Formats
- 7. Distributed Cache & Map side Join, Reduce Side Join
- 8. Building and Running Spark Application
- 9. Word count in Hadoop and Spark

Programme:- BCA (AI&DA) Semester – VII wef: July 2025

Name of Paper & Category	Paper Code			Prac	tical	
Name of Taper & Category	Taper Code	Cro				
Major Project	BAI-705	P	J	ESP	CAP	Total
(Field)	DAI-703	-	10	200	100	300

Contents (Practical)

Process: - Project Guide of the project will be allotted by Director/Head of Department. Any related technology can be chosen for development of Project. It is to be done in Industry/Organization.

Evaluation parameters are:

- Problem Statement and Objective
- Technical Implementation
- Functionality and Features
- User Interface and Experience
- Data Management and Database
- Design Documentation
- Testing and Quality Assurance
- Innovation and Creativity
- Project Presentation
- Overall Project Outcome