

**ST. MARY'S GROUP OF INSTITUTIONS GUNTUR**  
 (Approved by AICTE & Permitted by Govt .of AP, Affiliated to JNTU-Kakinada)  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
 2020-21

**COURSE FILE – INDEX**

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**Course File**  
**BIG DATA**  
**ANALYTICS**



**1. VISION & MISSION OF THE INSTITUTION**

**VISION:**

To emerge as a world class Institution in creating and disseminating knowledge, and providing unique learning experience in Technology, Management, Pharmaceuticals & other areas that will best serve the world & betterment of mankind.

**MISSION:**

Accomplish process of knowledge in rigorous academic environment. Attract and build people in a rewarding, inspiring environment by fostering freedom, empowerment, creativity and innovation.

**2. VISION & MISSION OF THE DEPARTMENT**

**VISION**

To prepare the student for a position involving the design, development and mplementation of computer software and systems.

**MISSION**

To provide practical orientation by identifying a real time opportunities and try to exploit the same with the students by undergoing the steps of SDLC

**3. PROGRAM EDUCATIONAL OBJECTIVE:**

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The Programme Educational Objectives of B.Tech. programmes are:

1. To prepare graduates who will be successful professionals in industry, government, academia, research, entrepreneurial pursuit and consulting firms
2. To prepare graduates who will contribute to society as broadly educated, expressive, ethical and responsible citizens with proven expertise
3. To prepare graduates who will achieve peer-recognition; as an individual or in a team; through demonstration of good analytical, design and implementation skills
4. To prepare graduates who will thrive to pursue life-long learning to fulfill their goals
5. **Learn and Integrate.**

Graduates of the program will be proficient in identifying, formulating, and solving computing problems by applying their knowledge of mathematics, computer science, and scientific method. They will be aware of the role of computing in multiple disciplines

6. **Think and Create.**  
Graduates of the program will be capable of specifying the requirements of a computing system. They will be capable of modeling, designing, implementing and verifying a computing system to meet specified requirements while considering real-world constraints
7. **Communicate.**  
Graduates of the program will be capable of communicating effectively with team members, constituents, and the public
8. **Clarify Purpose and Perspective.**  
Graduates of the program will be aware of the benefits of developing their understanding and professional capabilities through lifelong learning
9. **Practice citizenship.**  
Graduates of the program will have knowledge of professional and ethical responsibility and will contribute to society through active engagement with professional societies, schools, civic organizations or other community activities

#### 4. PROGRAM OUTCOMES:



Graduates of the program are expected to demonstrate:

- a) An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- d) An ability to function effectively on teams to accomplish a common goal.
- e) An understanding of professional, ethical, legal, security and social issues and responsibilities.
- f) An ability to communicate effectively with a range of audiences.
- g) An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- h) Recognition of the need for and an ability to engage in continuing professional development.
- i) An ability to use current techniques, skills, and tools necessary for computing practice.
- j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- k) An ability to apply design and development principles in the construction of software systems of varying complexity.

## **5. PROGRAM SPECIFIC OUTCOMES**

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## PSO1:

### Professional Skills:

#### 1. Be Logical

When computer science professor James O'Dell was asked what the important basics to master for computer science were, the first thing he said was to have a good foundation in logic

#### 2. Be mathematic

Math is also an important factor in computer science.

“So when you’re programming functions and commands into computers, you need to understand the basis of all of that is in mathematics.”

#### 3. Challenge yourself

One thing that can help an aspiring computer specialist is by testing in real-life technical situations, said Matthew Wright, computer science associate professor. He said people can seek these opportunities out on the Internet

“I really recommend that people try TopCoder,” Wright said. [TopCoder](#) is an online website that holds weekly competitions to see who is the most skilled in computer programming

#### 4. Get involved with a group

Nothing develops skills more than hanging around a group of friends who shares the same interests, Wright said

Getting involved with a group of that caliber really develops your skills,” Wright said. “It’s much better to learn with a group of friends, learning the same technical skills, than it is a teacher lecturing in a class.”

#### 5. Be calm in stressful environments

One thing that computer engineering senior Sean Pierce recommends is being able to process large amounts of technical information quickly

“The computer can be a toy, not just a tool,” Pierce said. “One should choose a field where one has a natural passion, and those who tinkering with their computer will probably be comfortable working with it professionally



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**6. Be creative**

Being a computer expert doesn't really mean you are restricted to one single method or practice. Being a computer expert means branching out and always striving for the impossible

**7. Branch out**

Computer science alumnus Patrick Baggett said that to succeed as a computer genius, a person needs to be diverse

"You need to learn software engineering, how computers work, how operating systems work, as well as countless programming languages," Baggett said

**8. Read and write a lot of code**

While it doesn't sound fun to be going through countless streams of code and data, Pierce said that it is a necessity in order to stay in the computer science workforce

**9. Understand your tools**

"You need to understand how your tools work," Baggett said. "You need not only know what a compiler, linker, assembler, interpreter and web browser is, but what they do for you to succeed

**10. Learn from failure, then quickly move on**

"Don't give up easily when something doesn't work,"

**PSO2:****Problem-solving Skills:**

1. Be employed in industry, government, or entrepreneurial endeavors to demonstrate professional advancement through significant technical achievements and expanded leadership responsibility;
2. Demonstrate the ability to work effectively as a team member and/or leader in an ever-changing professional environment; and
3. Progress through advanced degree or certificate programs in computing, science, engineering, business, and other professionally related fields.

**PSO3:****Successful Career and Entrepreneurship:**

1. Technical computing skills



- Problem-solving ability, recognizing levels of abstraction in software, hardware systems, and multimedia
- Practical skills such as building and using database management systems and other sophisticated software tools
- Programming
- Using existing software libraries to carry out a variety of computing tasks, such as creating a user interface
- Being aware of the uses to which computers are put, recognizing issues to do with security, safety, etc.
- Looking at innovative ways of using computers, creating tools, providing tools support, etc.

## 2. General professional skills

- Communicating in writing, giving effective presentations and product demonstrations, and being a good negotiator (both in traditional environments and electronically)
- Preparing for a job search; this involves building an impressive curriculum vitae and basing this confidently on technical and other skills
- Being an effective team member
- Understanding the special requirements of a globally distributed project with participants from multiple cultures
- Recognizing the challenges and opportunities of keeping skills up-to-date and understand how to do so
- Literacy/fluency in computing; organizing all your professional information effectively





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IV Consistency of PEOs with the Mission of the department

	<b>Mission-1</b>	<b>Mission-2</b>	<b>Mission-2</b>
<b>PEO-1</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>PEO-2</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>PEO-3</b>	<b>3</b>	<b>2</b>	<b>3</b>



### 3. COURSE DETAILS:

- ❖ Course Name : BIG DATA ANALYTICS
- ❖ Course code :
- ❖ Discredit Points : 03
- ❖ Program(s) in which the course is offered : CSE
- ❖ Name of faculty member responsible for the course & mini-Profile:  
Dr. JAIDEEP GERA
- ❖ Level/year at which this course is offered : **UG, IV CSE I SEM**
- ❖ Pre-requisites for this course (if any) :

PROGRAMME:UG	DEGREE <b>B TECH</b>
COURSE:CSE	AY: 2020-21 SEMESTER : 1 CREDITS:3
COURSE CODE: REGULATION: <b>R16</b>	COURSE TYPE: <b>CORE/ELECTIVE/BREADTH/S&amp;H</b>
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 TUTORIAL
CORRESPONDING LAB COURSE CODE(IF ANY):	LAB COURSE NAME: *****
PO Mapped:	Corresponding PEO:

### 4. University academic Calender



Website: www.jntuk.edu.in  
Email: dapjntuk@gmail.com



Phone: 0884-2300991  
Mobile: 7032606555

**Directorate of Academic Planning**  
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA  
KAKINADA-533003, Andhra Pradesh, INDIA  
(Established by AP Government Act No. 30 of 2008)

Lr. No. 01-08/JNTUK/DAP/AC/B. Tech-B. Pharmacy/II-III-IV Year/2020-21

Date: 04-08-2020

**Dr. R. Srinivasa Rao,**  
Director, Academic Planning  
JNTUK, Kakinada

To  
All the Principals of Affiliated Colleges,  
JNTUK, Kakinada.

**Academic Calendar for II, III and IV - B. Tech & B. Pharmacy**  
**Academic year 2020-21**

I SEMESTER			
Description	From	To	Weeks
<b>Commencement of Class Work</b>	<b>17.08.2020</b>		
I Unit of Instruction	17.08.2020	03.10.2020	7W
I Mid Examinations	28.09.2020	03.10.2020	
II Unit of Instructions	05.10.2020	21.11.2020	7W
II Mid Examinations	16.11.2020	21.11.2020	
Preparation & Practicals	23.11.2020	28.11.2020	1W
End Examinations	30.11.2020	12.12.2020	2W
Commencement of II Semester Class Work	<b>14.12.2020</b>		
II SEMESTER			
I Unit of Instructions	<b>14.12.2020</b>	30.01.2021	7W
I Mid Examinations	25.01.2021	30.01.2021	
II Unit of Instructions	01.02.2021	20.03.2021	7W
II Mid Examinations	15.03.2021	20.03.2021	
Preparation & Practicals	22.03.2021	27.03.2021	1W
End Examinations	29.03.2021	10.04.2021	2W
Commencement of next Year Class Work	<b>14.06.2021</b>		

*Note: Calendar is prepared with 8 hrs/day hence 7 weeks per instruction period*

*R. Srinivasa Rao*  
Director Academic Planning  
Director  
Academic Planning  
JNTUK Kakinada

Copy to the Secretary to the Hon'ble Vice Chancellor, JNTUK  
Copy to Rector, JNTUK  
Copy to Registrar, JNTUK  
Copy to Director Academic Audit, JNTUK  
Copy to Director of Evaluation, JNTUK

**COURSE SYLLABUS:**

**COURSE FILE**  
**YEAR/SEM: IV/I**

**COURSE NAME: Big Data Analytics**  
**REGULATION: R-16**



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**BIG DATA ANALYTICS**T P C  
4 0 3

Hadoop and Big Data(Theory) (JNTUK,KAKINADA SYLLABUS)

**Unit 1:** 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 Reference:Big Java 4th Edition, Cay Horstmann, Wiley John Wiley & Sons, INC

**Unit 2:** Working with Big Data: 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. References:Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly Hadoop in Action by Chuck Lam, MANNING Publ.

**Unit 3:** Writing MapReduce Programs: A Weather Dataset, Understanding Hadoop API for MapReduce Framework (Old and New),Basic programs of Hadoop MapReduce: Driver code, Mapper code, Reducer code, RecordReader, Combiner, Partitioner Reference:Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly

**Unit 4:** 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 Reference:Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly

**Unit 5:** Pig: 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 Reference:Hadoop for Dummies by Dirk deRoos, Paul C.Zikopoulos, Roman B.Melnyk,Bruce Brown, Rafael Coss

**Unit 6:** Applying Structure to Hadoop Data with Hive: Saying Hello to Hive, Seeing How the Hive is Put Together, Getting Started with Apache Hive, Examining the Hive Clients, Working with Hive Data Types, Creating and Managing Databases and Tables, Seeing How the Hive Data Manipulation Language Works, Querying and Analyzing Data References:Hadoop for Dummies by Dirk deRoos, Paul C.Zikopoulos, Roman B.Melnyk,Bruce Brown, Rafael Coss

SYLLABUS:



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Sl. No	Topic	No. of Hours
1	Data structures in Java	12
2	Working with Big Data	15
3	Writing Map Reduce Programs	10
4	Hadoop I/O	12
5	Pig: Hadoop Programming Made Easier	10
6	Applying Structure to Hadoop Data with Hive	10



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REFERENCE BOOKS:

**BOOK TITLE/AUTHORS/PUBLICATION**

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

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

3. Hadoop in Action by Chuck Lam, MANNING Publ.

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

**6. Faculty Mini Profile****FACULTY PROFILE****4.1.4/YYYY/DDD/HR/FS/PP/PROFILE**1. Name : **Dr. Jaideep Gera**2. Date of Birth : **09-08-1987**3. Highest Qualification : **Ph.D.**

4. Academic Performance (Descending Order)

S.No	Degree	University/ Institution	Year of Pass	% of Marks	Class
1	Ph.D.	Acharya Nagarjuna University	2019	-	-
2	M.TECH	JNTUK	2011	77.7	DISTINCTION
3	B.Tech	JNTUK	2009	57.8	SECOND
4	SSC	SECONDARY SCHOOL OF EDUCATION	2002	71.6	FIRST

5. Total  
Year  
s of  
Expe  
rienc

e : --

S.No.	Period		Organization / Institution	Position Held
	From	To		
1	2012	2014	Dr.VRK Womens College of Engineering and Technology	Assistant Professor
2	2014	2019	Eqlizer Softech Pvt Ltd	Performance Test Engineer
3	2019(Nov)	Till Date	ST. Marys Group of Institutions Guntur	Associate Professor

6. Date of joining in this Institution : 06-11-2019

7. Status as on date of joining : Associate Professor

8. Salary as on date of joining : 50,000/-

9. Present Status : Assoc. Prof

10. Salary as on date : 50,000/-

11. Number of promotions since date of joining : -

12. Achievements since date of joining : -

**13. Self-Appraisal:**

Major Strengths	Major Weaknesses
1. Work minded 2. Subject Knowledge 3. Learning new technologies	1. 2. 3.

Signature



## 7. Time table: (Course/Lab)

## TIME TABLES FOR IV / I SEMESTER

REGULATION : R16  
ACADEMIC YEAR : 2020 – 21

YEAR : IV

SEM : I

SECTION : A &amp; B

**IV / I SEM TIME TABLE**

IV / I CSE – A

A. Y: 2020 - 2021

REGULATION: R16

W.E.F: 17.08.2020

	1	2		3	4		5	6	7	8
Day /Hour	9:00-9:50	9:50-10:40	*	10:50-11:40	11:40-12:30	*	1:10-2:00	2:00-2:50	2:50-3:40	3:40-4:30
MON	BDA(A)				BDA(B)					
TUE		BDA(B)					BDA(A)			
WED				BDA(A)					BDA(B)	
THU		BDA(A)					BDA(B)			
FRI				BDA(B)					BDA(A)	
SAT	BDA(A)				BDA(B)					

HOD

PRINCIPAL

HOD

PRINCIPAL





## 8. Lesson plan

Lesson. No	Unit	Topic	References Books	No. of Classes Required
<b>UNIT-I- DATA STRUCTURES IN JAVA</b>				
1	I	Linked List	1	2
2	I	Stacks	1	1
3	I	Queues	1	1
4	I	Sets	1	1
5	I	Maps	1	1
6	I	Generics: Generic classes and Type parameters	1	2
7	I	Implementing Generic Types	1	1
8	I	Generic Methods, Wrapper Classes,	1	2
9	I	Concept of Serialization	1	1
<b>UNIT II- WORKING WITH BIGDATA</b>				
10	II	Google File System	2	1
11	II	Hadoop Distributed File System	2	2
12	II	Building blocks of Hadoop	2	1
13	II	Namenode	2	1
14	II	Datanode	2	1
15	II	Secondary Namenode	2	1
16	II	JobTracker,	2	1
17	II	Task Tracker	2	1
18	II	Introducing and Configuring Hadoop cluster	2	1
19	II	Local Mode	2	1



20	II	Pseudo-distributed mode	2	1
21	II	Fully Distributed mode	2	1
22	II	Configuring XML files	2	2
<b>UNIT III-Writing MapReduce Programs:</b>				
19	III	A Weather Dataset	2	1
20	III	Understanding Hadoop API for MapReduce Framework (Old )	2	1
21	III	Understanding Hadoop API for MapReduce Framework (New )	2	1
22	III	Basic programs of Hadoop MapReduce: Driver code	2	2
23	III	Mapper code	2	1
24	III	Reducer code	2	1
25	III	RecordReader,	2	1
26	III	Combiner	2	1
27	III	Partitioner	2	1
<b>UNIT IV- Hadoop I/O:</b>				
33	IV	The Writable Interface	2	1
34	IV	WritableComparable and comparators	2	1
35	IV	Writable Classes: Writable wrappers for Java primitives	2	1
36	IV	Text	2	1
37	IV	BytesWritable	2	1
38	IV	NullWritable	2	1
39	IV	ObjectWritable and GenericWritable	2	2
40	IV	Writable collections	2	1
41	IV	Implementing a Custom Writable	2	1
42	IV	Implementing a RawComparator for speed	2	1
43	IV	Custom comparators	2	1



<b>UNIT V--Hadoop Programming Made Easier Admiring the Pig Architecture,</b>				
<b>44</b>	<b>V</b>	Going with the Pig Latin Application Flow	4	<b>2</b>
<b>45</b>	<b>V</b>	Working through the ABCs of Pig Latin	4	<b>2</b>
<b>46</b>	<b>V</b>	Evaluating Local and Distributed Modes of Running Pig Scripts	4	<b>2</b>
<b>47</b>	<b>V</b>	Checking out the Pig Script Interfaces,	4	<b>2</b>
<b>48</b>	<b>V</b>	Scripting with Pig Latin	4	<b>2</b>
<b>UNIT VI-Applying Structure to Hadoop Data with Hive</b>				
<b>50</b>	<b>VI</b>	Saying Hello to Hive	4	<b>2</b>
<b>51</b>	<b>VI</b>	Seeing How the Hive is Put Together	4	<b>1</b>
<b>52</b>	<b>VI</b>	Getting Started with Apache Hive, Examining the Hive Clients	4	<b>1</b>
<b>53</b>	<b>VI</b>	Working with Hive Data Types,	4	<b>1</b>
<b>54</b>	<b>VI</b>	Creating and Managing Databases and Tables	4	<b>1</b>
<b>55</b>	<b>VI</b>	Seeing How the Hive Data Manipulation Language Works	4	<b>2</b>
<b>56</b>	<b>VI</b>	Querying and Analyzing Data	4	<b>2</b>



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**Learning Resources:**

**Required Text(s) :**

Text Books:

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

**Essential References :**

- Hadoop in Practice by Alex Holmes, MANNING Publ.
- Hadoop MapReduce Cookbook,Srinath Perera, Thilina Gunarathne

**Web site references:**

- Hadoop:<http://hadoop.apache.org/>
- Hive: <https://cwiki.apache.org/confluence/display/Hive/Home>
- Piglatin: <http://pig.apache.org/docs/r0.7.0/tutorial.html>



## 9. COURSE OBJECTIVES AND OUTCOMES

### COURSE OBJECTIVES:

- Optimize business decisions and create competitive advantage with Big Data analytics
- Introducing Java concepts required for developing map reduce programs
- Derive business benefit from unstructured data
- Imparting the architectural concepts of Hadoop and introducing map reduce paradigm
- To introduce programming tools PIG & HIVE in Hadoop ecosystem.

### COURSE OUTCOMES:

- Preparing for data summarization, query, and analysis.
- Applying data modelling techniques to large data sets
- Creating applications for Big Data analytics
- Building a complete business data analytic solution



## 11. Mapping of COs and POs

After completing this course the student demonstrate the knowledge and ability to:

Code	Course Outcome	Level of Learning
C415.1	Apply the data structures in java	Apply L3
C415.2	Formulation of Hadoop Framework in different modes	Synthesis L5
C415.3	Developing Map Reduce Programs	Apply L3
C415.4	Explain input and output operations for Hadoop	Comprehension L2
C415.5	Apply PIG tool for Hadoop	Apply L3
C415.6	Apply structure to Hadoop with HIVE	Apply L3

### CO-PO Mapping (with Level of attainment)

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C415.1	3	1			2							
C415.2	1				3							
C415.3		1	2	2	3							
C415.4		1	2	2	3							
C415.5				2	3							
C415.6		1	2		3							

Note: 1-Low

2-Moderate

3-High

### CO-PSO Mapping:

CO\PSO	PSO1	PSO2	PSO3
C415.1			2
C415.2			
C415.3			2
C415.4			
C415.5			2
C415.6			2

Note: 1-Low

2-Moderate

3-High



## 12. Gaps in the syllabus and Mapping in Cos:

### GAPS IN SYLLABUS ADRESSED

S.NO	Description	Proposed action	Course objective mapped	Course out comes mapped
1				
2				
3				
4				

⇒ mapping of the Gaps with Course Cos

## 13. Lesson plan of syllabus with the Gaps

S.No	Gaps(topic)	Subtopic Covered	No. of Classes Required

## 14. Experiments beyond the syllabus (if any)

S.No	Date	Experiment Name	Ref

**15. Important Unit-wise Questions:****Unit-1**

1. Explain about data structures in java
2. Explain Generic classes and methods.
3. Explain about wrapper classes
4. Explain about serialization

**Unit-2**

1. Explain about Google File System
2. Explain Building blocks of HDFS
3. Write the procedure to configure hadoop cluster in local, pseudo and distributed modes
4. Write about xml configuration files

**Unit-3**

1. Write about Weather data set program in hadoop
2. Write differences for old and new api for MapReduce
3. Write about RecordReader
4. Write about Combiner
5. Write about Partitioner

**Unit-4**

1. Write about writable interface , writable comparable and comparators
2. Explain about writable classes
3. How to implement custom writable
4. How to implement RawComparator
5. How to implement Custom Comparator

**Unit -5**

1. Draw pig architecture and explain the components
2. Write about ABC's of pig latin
3. Write the procedure for creating and running pig scripts in local and distribute modes

**Unit-6**

1. Write about installation procedure of HIVE
2. Hive data types
3. Creating and managing database and tables
4. Write about apache hive
5. Querying and analyzing data in hive





Subjective Questions

Objective Questions

16. Internal/MID question papers with keys

## **St. MARY'S GROUP OF INSTITUTIONS GUNTUR**

Course/ Sem: IV B.Tech / I Sem

MID-I

Date:

Duration: 90.min

Subject / Branch: CSE/ BDA

Max. Marks: 30

ANSWER THE FOLLOWING QUESTIONS (ALL QUESTIONS CARRY EQUAL MARKS)

3X10=30M

1. (a) What is the use of generics in Java? [2M]  
(b) What is a Wrapper class in JAVA? How do you create a Wrapper class in JAVA? Why Wrapper classes are immutable in JAVA? Give explanation. [8M]
2. (a) What is big data? [2M]  
(b) With a neat sketch explain the typical architecture of Hadoop cluster. [8M]
3. (a) Explain the following  
i) Drivercode ii) Mappercode iii) Reducercode [5M]  
b) Write a MapReduce program in JAVA to count the number of words in a file. [5M]



**17. List of Assignments:**

**Assignment-I**

**Assignment-II**

**18. Guest Lectures:**

<b>Name of the speaker(s)</b>	<b>Designation</b>	<b>Institution/University/Organization</b>	<b>Title of the topic</b>	<b>Date</b>	<b>Beneficiary</b>




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**19. No. of students and List**

S.No	Hall Ticket	Name of The Student
1	16BJ1A0587	P V Ramaiah
2	17BJ1A0501	Achutha Sai Kumar
3	17BJ1A0502	Aradhyula Venkata Subramanya Manikanta
4	17BJ1A0503	Avvaru Geetanjali
5	17BJ1A0504	Bandreddi Sudhakar
6	17BJ1A0509	Boodati Madhavi
7	17BJ1A0510	Boppana Venkatesh
8	17BJ1A0512	Borru Charan Kumar
9	17BJ1A0514	Budati Dharan Kumar
10	17BJ1A0515	Chadurajupalli Tirumaleswara Rao
11	17BJ1A0516	Challa Ashok
12	17BJ1A0517	Challa Prem Kumar
13	17BJ1A0518	Challapalli Srinivasu
14	17BJ1A0519	Chembeti Pavan Kumar
15	17BJ1A0520	Chittibomma Pavankumar
16	17BJ1A0521	Desabathula Steeva
17	17BJ1A0522	Devendra Mastan Rao Sardena
18	17BJ1A0523	Gamrbad Suraj Kumar Singh
19	17BJ1A0525	Gangineni Krishnaveni
20	17BJ1A0526	Ganipisetty Sudheer Kumar
21	17BJ1A0528	Gurram Sandhya Rani
22	17BJ1A0529	I Ram Charan
23	17BJ1A0530	Jaladi Sairam
24	17BJ1A0531	Jalli Bhargav
25	17BJ1A0532	Kadiyala Ratna Priya
26	17BJ1A0535	Kavuri Pavan Kumar
27	17BJ1A0536	Kavuri Satyanarayana
28	17BJ1A0537	Kelam Ajay Kumar



29	17BJ1A0539	Khaja Revathi Naga Hari Priya
30	17BJ1A0540	Kodali Gireesh Babu
31	17BJ1A0541	Kodali Monika Sesa Durga
32	17BJ1A0542	Kommuri Dilep Kumar
33	17BJ1A0544	Kondaveeti Mohana Sravya
34	17BJ1A0545	Kongala Venkata Sravanthi
35	17BJ1A0546	Korlapati Shekinah Glory
36	17BJ1A0547	Kosanam Renuka
37	17BJ1A0549	Kukkala Ajaykumar
38	17BJ1A0551	Kurapati Devi Pratap Raju
39	17BJ1A0552	Kurukuri Gayathri Devi
40	17BJ1A0554	Mallampati Keerthi
41	17BJ1A0556	Mande Prem Kumar
42	17BJ1A0559	Maram Anil Kumar Reddy
43	17BJ1A0560	Mohammad Nihal
44	17BJ1A0563	Mudraboina Vara Lakshmi
45	17BJ1A0564	Munagala Purna Venkatasivaparvathi
46	17BJ1A0565	Munagala Sriharsha
47	17BJ1A0567	Nagubilli Prem Kumar
48	17BJ1A0568	Neela Sasi Kumar
49	17BJ1A0570	Pandaraboina Himakar
50	17BJ1A0574	Perugu Samba Siva Rao
51	17BJ1A0575	Amarthalapudi Arogyam
52	17BJ1A0578	Ramineni Venkata Gopi Krishna
53	17BJ1A0579	Ramisetty Likhitha Naga Sri
54	17BJ1A0580	Reedy Nikhil Madhav
55	17BJ1A0581	Sagam Suresh Reddy
56	17BJ1A0582	Sangamreddy Manasa Valli
57	17BJ1A0583	Sannamelam Shiva
58	17BJ1A0584	Sarepalli Praveena
59	17BJ1A0586	Selam Narendra Kumar



60	17BJ1A0589	Shaik Abdul Sameer
61	17BJ1A0590	Shaik Afrin Neha
62	17BJ1A0591	Shaik Asma
63	17BJ1A0593	Shaik Ezad Aslam
64	17BJ1A0594	Shaik Khadersha
65	17BJ1A0595	Shaik KhajaSuraj
66	17BJ1A0597	Shaik Naina Gori
67	17BJ1A0598	Shaik Ruhi Sultana
68	17BJ1A05A0	Singathala Vishnuvardhan Reddy
69	17BJ1A05A1	Sirikonda Venu
70	17BJ1A05A2	Sivaratri Purnachandrarao
71	17BJ1A05A3	Suvarnaganti Kaveri
72	17BJ1A05A6	Thokala Sai Kumar
73	17BJ1A05A7	Tholuchuri Phanindra
74	17BJ1A05A8	Thota praveen
75	17BJ1A05A9	Thota Vasavi
76	17BJ1A05B0	Tumu Sai Suresh
77	17BJ1A05B1	Uilisi Rajya Lakshmi Nadh
78	17BJ1A05B2	Upputolla Raviteja
79	17BJ1A05B4	Vanaja Sai Aravind
80	17BJ1A05B5	Velagaleti Repchar Kiran
81	17BJ1A05B6	Yarrabothula Pavani
82	18BJ5A0501	ADUSUMALLI YAMINI
83	18BJ5A0503	NAGIDI MANIKANTA VARA PRASAD
84	18BJ5A0504	YAKKALA ANUSHA
85	18BJ5A0505	LALAM YAMUNA GANGA BHAVANI
86	16BJ1A0543	JAGU HEMA MANIKANTA
87	16BJ1A05A7	SK.SAJID ALI

**20. Sessional Marks Analysis:**

S. No	Category	No of students	Action Taken to improve
1	Very Poor (<50%)		
2	Below Average ( 50 to <60%)		
3	Pass with II class (60-65%)		
4	Pass with I class (>65%)		

**20. Attendance**

S. No	Category	No of students	Action Taken to improve
1	Very Poor (<50%)		
2	Below Average ( 50 to <65%)		
3	Average (65-70%)		
4	Regular (>75%)		

**21. Remedial /corrective action:**

S.NO	UNIT NO	DATE	TOPIC NAME	NO OF HOURS	NO. OF STUDENTS ATTENDED
1					
2					
3					
4					
5					
6					



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## 22. UNIVERSITY QUESTION PAPERS

IV B.Tech I Semester Regular Examinations, November – 2016 **Set No. 1**

### **HADOOP AND BIG DATA**

(Common to Computer Science & Engineering and Information Technology)

**Time: 3 hours Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

#### **PART–A(22 Marks)**

1. a) Give the difference between autoboxing and unboxing. [4]
- b) How a secondary name node differs from the name node in HDFS. [4]
- c) Define the role of combiner and partitioner in a map reduce application. [4]
- d) What do you mean by serialization and how should be the RPC serialization format? [3]
- e) Define the three key design principles of pig latin. [3]
- f) How to create a table by using HIVEQL. [4]

#### **PART–B(3x16 = 48 Marks)**

2. a) Why linked lists, stacks and queues are called as linear data structures and explain the operations performed on stacks and queues with examples. [8]
- b) What is the use of generic methods and generic classes in java and explain the various generic methods and classes supported by java. [8]
3. a) Explain the basic building blocks of Hadoop with a neat sketch. [8]
- b) Explain the various operational modes of Hadoop cluster configuration. [8]
4. a) Distinguish between the old and new versions of Hadoop API for Map Reduce frame work. [8]
- b) Explain about the implementation of map reduce concept with a small example. [8]
5. a) Explain the significance of Writable interface along with Writable Comparable and comparators w.r.to implementing the serialization. [8]
- b) Explain the Writable class hierarchy with a neat sketch. [8]
6. a) Explain the architecture of a pig with a neat sketch. [8]
- b) Explain the syntax of a pig program with a suitable example. [8]
7. a) Explain with neat sketch about the configuration of CLI client and WI client while interacting with HIVE. [8]



b) Explain about the various data types supported by HIVEQL with an example. [8]

**23. Student Feedback:**

- Feedback form :( annexure 1)
- Feedback analysis
- Processes for Improvement of Teaching
- Action plan for periodical review of the subject

**24. Result Analysis:**

Year/ Semester	Number of students		No. of students securing $\geq$ 60%	No. of students securing $\geq$ 75%	Pass%	Fail %
	Appear	Passed				

**25. Course outcome assessment:**

Annexure – I

## St. Mary's Group of Institutions Guntur

Chebrolu (village & Mandal) , Guntur(Dt.)-522212 , A.P ; [www.stmarysguntur.com](http://www.stmarysguntur.com)





## STUDENTS' FEEDBACK ON FACULTIES

2015/CSE/FIP/SFF

NAME (Optional):

BRANCH:

SEMESTER:

I.VIII → Subjects Code

Choose → 5-Excellent; 4-V.Good; 3-Good; 2-Fair; 1-Poor

S. No	DESCRIPTION	I	II	II	I	V	V	VI	VII
1	Teacher comes to Class on time								
2	Teaching is well planned								
3	Teacher makes objectives clear								
4	Subject matter organized in logical sequence								
5	Teacher comes well prepared in the subject								
6	Teacher speaks clearly and audibly								
7	Teacher writes and draws legibly								
8	Teacher explains with examples clearly								
9	Teaching pace is good; Not very fast								
10	Teachers offers assistance and counseling								
11	Teacher asks relevant questions for interaction								
12	Teacher encourages raising doubts								
13	Teacher ensures learning of subject								
14	Teacher encourages originality and creativity								
15	Teacher is courteous and impartial								
16	Teacher is regular and maintains discipline								
17	Teacher covers the syllabus at appropriate pace								
18	Teacher holds quizzes, seminars regularly								
19	Teacher correction of scripts fair and impartial								
20	Teacher promptly values and returns papers								

DATE:

FACULTY IN-CHARGE

HEAD OF THE DEPARTMENT



Annexure - II

**St. Mary's Group of Institutions Guntur**

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**FEEDBACK ANALYSIS & ACTIONS**

DEPARTMENT:

DATE:

ACADEMIC YEAR:

SEMESTER:

S. No	Faculty name	Subject	Percentile	Remarks

DATE:

FACULTY IN-CHARGE

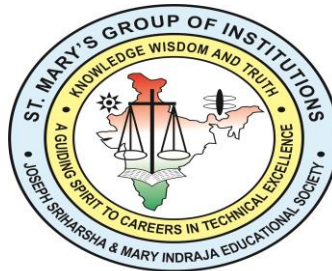
HEAD OF THE DEPARTMENT



Coverpage of the course file:

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2020-21

**COURSE FILE**

Of

**BIGDATA**

**ANALYTICS**

Prepared by

**Dr. JAIDEEP GERA**

Assoc. Professor

For

IV B.Tech I SEM

**DEPARTMENT OF ---COMPUTER SCIENCE & ENGINEERING**



**This course file should be supported by :**

- ⇒ Lesson Plan, Notes
- ⇒ Teaching dairy
- ⇒ Attendance registers
- ⇒ Mid Question papers and Answer sheets
- ⇒ Records of guest lectures, remedial classes etc.,