

SRI VENKATESWARA UNIVERSITY
BCA Big Data Honours– W.E.F. 2025-26

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
III	V	12	Mobile application development using ANDROID	3	3
			Mobile application development using ANDROID Lab	2	1
		13	Data Mining and Data Housing	3	3
			Data Mining and Data Housing Lab	2	1
		14	Tableau for Data Visualization	3	3
			Tableau for Data Visualization Lab	2	1
		15	Big Data Acquisitions and Analysis	3	3
			Big Data Acquisitions and Analysis Lab	2	1

SRI VENKATESWARA UNIVERSITY::TIRUPATI
BCA Big Data Honours
III Year V Semester
COURSE 12: MOBILE APPLICATION DEVELOPMENT USING ANDROID
(w.e.f. 2025-26)

Theory

Credits: 3

3 hrs/week

COURSE OBJECTIVES:

1. To facilitate students' understanding of the android SDK
2. To help students gain basic understanding of Android application development
3. To instill working knowledge of the Android Studio development tool

COURSE OUTCOMES:

The theory, practical experiences and relevant skills associated with this course are to be taught and implemented, so that the student demonstrates the following industry-oriented Cos associated with the above-mentioned competency:

1. Identify various concepts and features of Android operating system.
2. Configure Android environment and development tools.
3. Develop rich user Interfaces by using layouts and controls.
4. Use UserInterface components for android application development.
5. Create Android application using database.
6. Publish Android applications.

UNIT-I

Introduction to Android:- Overview, History, Features of Android, The Android Platform, Understanding the Android Software Stack –Android Development Environment -Android SDK, Android Installation, Building you First Android application.

Case Study:

- i. Give a brief description of Android Architecture and its parts.
- ii. List out the challenges we face while using Android?
- iii. List the new features of Android in the latest version.

UNIT-II

Android Application Design Essentials: Understanding Anatomy of Android Application, Android terminologies, Creating User Interfaces with basic views- Application Context, Activities, Services, Intents, linking activities with Intents, Receiving and Broad casting Intents, Android Manifest File and its common settings, Using Intent Filter, Permissions.

Case Study:

- i. Present an idea that you would like to convert it into an application in the future.

UNIT-III

Android User Interface Design Essentials: User Interface Screen elements, Designing User Interfaces with Layouts, Drawing and Working with Animation. Layouts, RecyclerView, ListView, GridView and Web view

Input Controls: Buttons, Checkboxes, Radio Buttons, Toggle Buttons, Spinners, Input Events, Menus, Toast, Dialogs, Styles and Themes, Creating lists, and Custom lists

Case Study:

- i. Present detail report on the features of Check Boxes, Radio Buttons and Toggle Buttons.

UNIT-IV

Testing Android applications: Publishing Android application, Using Android preferences, Managing Application resources in a hierarchy, working with different types of resources.

Case Study:

1. List out the special features of Android with its counterparts.

UNIT-V

Using Common Android APIs: Internal Storage, External Storage, SQLite Databases, managing data using Sqlite, Sharing Data between Applications with Content Providers, Using Android Networking APIs, Using Android Web APIs.

CaseStudy:

- i. List out the points to keep in mind to make your application more attractive.
- ii. List the controls that make your application attractive.

REFERENCE BOOKS:

1. Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education, 2nd ed. (2011)
2. Google Developer Training, "Android Developer Fundamentals Course – Concept Reference", Google Developer Training Team, 2017.
3. Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd
4. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd
5. "Android Application Development All in one for Dummies" by Barry Burd, Edition: I
6. "Android", Dixit, Prasanna Kumar Vikas Publications, New Delhi 2014, ISBN: 9789325977884
7. Maclean David, Komatineni Satya, Allen Grant, "Pro Android 5", Apress Publications 2015 ISBN: 978-1-4302-4680-0
8. "Android Programming for Beginners" by Horton, John, Packet Publication, 2015 ISBN: 978-1-78588-326-2

ONLINE READING/ SUPPORTING MATERIAL:

1. <http://www.developer.android.com>
2. <http://developer.android.com/about/versions/index.html>
3. <http://developer.android.com/training/basics/firstapp/index.html>
4. <http://docs.oracle.com/javase/tutorial/index.htm> (Available in the form of free downloadable ebooks also).
5. <http://developer.android.com/guide/components/activities.html>
6. <http://developer.android.com/guide/components/fundamentals.html>
7. <http://developer.android.com/guide/components/intents-filters.html>.
8. <http://developer.android.com/training/multiscreen/screensizes.html>
9. <http://developer.android.com/guide/topics/ui/controls.html>
10. <http://developer.android.com/guide/topics/ui/declaring-layout.html>
11. <http://developer.android.com/training/basics/data-storage/databases.html>

BCA Big Data Honours

III Year V Semester

COURSE 12:MOBILE APPLICATION DEVELOPMENT USING ANDROID

Practical

Credits: 1

2hrs/week

LISTOFEXPERIMENTS:

1. Develop a program to implement frame layout, table layoutand relative layout.
2. Develop a program to implement Text View and Edit Text.
3. Develop a program to implement Auto Complete Text View.
4. Develop a program to implement Button, Image Button and Toggle Button.
5. Develop a program to implement login window using above UI controls.
6. Develop a program to implement Checkbox.
7. Develop a program to implement Radio Button and Radio Group.
8. Develop a program to implement Progress Bar.
9. Develop a program to implement List View, Grid View, Image View and Scroll View.
10. Develop a program to implement Custom Toast Alert.
11. Develop a program to implement Date and Time Picker.
12. Develop a program to create an activity. Develop a program to implement new activity using explicit intent and implicit intent.
13. Develop a program to implement content provider.
14. Develop a program to implement service.
15. Develop a program to implement broadcast receiver.
16. Develop a program to implement sensors.
17. Develop a program to build Camera.
18. Develop a program for providing Bluetooth connectivity.
19. Perform CRUD operations using SQLite.

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
BCA Big Data Honours
III Year V Semester

COURSE 12:MOBILE APPLICATION DEVELOPMENT USING ANDROID
(w.e.f. 2025-26)

Time : 3 Hrs

Max Marks : 75

SECTION - A

Answer any Five of the following

5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following

5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

Note: The question paper setter is requested to set question paper based on a model question paper and ensure coverage across all units equally.

SRI VENKATESWARA UNIVERSITY::TIRUPATI
BCA Big Data Honours
III Year V Semester
COURSE 13: DATA MINING and WAREHOUSING
(w.e.f. 2025-26)

Theory

Credits: 3

3 hrs/week

OBJECTIVES:

- Study data warehouse principles and its working
- Learn Data mining concepts and understand Association Rule Mining
- Study Classification Algorithms 4. Gain knowledge of how data is grouped using clustering techniques.

OUTCOMES:

- Comparison of functional differences between data warehouse and database systems.
- Ability to perform the pre-processing of data and apply mining techniques on it.
- Capability to identify the association rules, classification and clusters in large data sets.
- Skills to solve real world problems in business and scientific information using data mining

Unit I

Introduction: Data Mining and Importance, Relational Databases, Data Warehouses, Transactional Databases. Data Mining Functionalities, Kinds of Patterns.

Data Preprocessing: Why Preprocess the Data?, Descriptive Data Summarization: Measuring the Central Tendency, Measuring the Dispersion of Data, Data Cleaning, Data Integration and Transformation, Data Reduction

Unit II

Data Warehouse and OLAP Technology: An Overview, What Is a Data Warehouse? , A Multidimensional Data Model, From Tables and Spreadsheets to Data Cubes, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional databases, Examples, Measures: Their Categorization and Computation, Concept Hierarchies, OLAP Operations in the Multidimensional Data Model.

Data Warehouse Architecture: Steps for the Design and Construction of Data Warehouses, A Three-Tier Data Warehouse Architecture, Data Warehouse Back-End Tools and Utilities. Data Warehouse Implementation.

Unit III

Mining Frequent Patterns, Associations, and Correlations: Basic Concepts, Mining

Methods: The Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation, Generating Association Rules from Frequent Itemsets, Improving the Efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation. Mining various kinds of Association Rules: Mining Multilevel Association Rules, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses.

Unit IV

Classification and Prediction: Classification, Prediction, Regarding Classification and Prediction, Decision Tree Induction, Attribute Selection Measures. Bayesian Classification:

Naïve Bayesian Classification Rule-Based Classification: Using IF-THEN Rules for Classification, Rule Extraction from a Decision Tree, Rule Induction Using a Sequential Covering Algorithm.

Unit V

Cluster Analysis: Cluster Analysis, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods. Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering, Density-Based Methods, Outlier Analysis.

TEXT BOOKS:

- 1) Data Mining- Concepts and Techniques- Jiawei Han, Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, 2 Edition, 2006.
- 2) Introduction to Data Mining, Pang-Ning Tan, Vipin Kumar, Michael Steinbach, Pearson Education.

REFERENCE BOOKS:

- 1) Data Mining Techniques, Arun K Pujari, 3rd Edition, Universities Press.
- 2) Data Warehousing Fundamentals, P. Raj Ponnaiah, Wiley Student Edition.
- 3) The Data Warehouse Life Cycle Toolkit — Ralph Kimball, Wiley Student Edition.
- 4) Data Mining, Vikram Pudi, P. R. Krishna, Oxford University Press

BCA Big Data Honours– W.E.F. 2025-26
III Year V Semester
COURSE 13: DATA MINING and WAREHOUSING Lab

Practical

Credits: 1

2hrs/week

LIST OF EXPERIMENTS:

1. Demonstration of preprocessing on dataset student.arff.
2. Demonstration of preprocessing on dataset labor.arff.
3. Demonstration of Association rule process on dataset contactlenses.arff using Apriori algorithm.
4. Demonstration of Association rule process on dataset test.arff using Apriori algorithm.
5. Demonstration of classification rule process on dataset student.arff using j48 algorithm.
6. Demonstration of classification rule process on dataset employee.arff using j48 algorithm.
7. Demonstration of classification rule process on dataset employee.arff using id3 algorithm.
8. Demonstration of classification rule process on dataset employee.arff using naïve bayes algorithm.
9. Demonstration of clustering rule process on dataset iris.arff using simple k-means.
10. Demonstration of clustering rule process on dataset student.arff using simple k-means.

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
BCA Big Data Honours
III Year V Semester
COURSE 13: DATA MINING AND DATA WAREHOUSING
(w.e.f. 2025-26)

Time : 3 Hrs

Max Marks : 75

SECTION - A

Answer any Five of the following

5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following

5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

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SRI VENKATESWARA UNIVERSITY::TIRUPATI

BCA Big Data Honours

III Year V Semester

COURSE 14: Tableau for Data Visualization

(w.e.f. 2025-26)

Theory

Credits: 3

3 hrs/week

I. Learning Outcomes:

1. Ability to collect and arrange data in a specific manner using visualization tool
2. Ability to analyse data visually with concepts like filter, sort, etc.
3. Able to differentiate comparison methodologies
4. Able to understand various types of charts in Tableau
5. Ability to generate reports with functions, joins, unions etc.

UNIT-I:

Data Visualization: Definition, importance of data visualization in data science, various visualization tools, History of Visualization, developing a visualization aesthetic– maximizing data link ratio, proper scaling and labeling, effective use of color and shading, the power of repetition.

UNIT-II:

Basics of Tableau: Introduction, Advantages of Tableau, Tableau products, file types in Tableau :Tableau Workbook, Tableau Packaged Workbook, Tableau data source, Tableau Packaged datasource, Tableau Data Extract, Installing Tableau software, Tableau Creator, Tableauprep, Tableau Explorer, Tableau Server.

UNIT-III:

Tableau Desktop UI: The Tableau productline, Desktop Architecture, Tableau environment, Data source Page, Workspace, workbooks and sheets, Visual cues and Icons in Tableau, fields in data pane.

Connect to files: Connect to Excel or Textfile, Connect to MS-Access, Connect to R Data files Connect to Server: Connect to Oracle, Connect to SQLServer, Connect to MySQL.

UNIT-IV:

Tableau Charts: Understanding dimensions and measures, **ChartTypes** :AreaChart, bar Chart, Bubble chart, Funnel Chart, Ganttchart, Waterfall chart, Geographic map, Sorting: Sorting on Axis, Sorting on specific fields, Filtering Data.

UNIT-V:

Tableau Reports: Joins: Inner, Left and Right joins, Unions,

Functions used in Tableau: Number functions, logic functions, string functions, aggregate functions.

III.TEXTBOOKS:

- ProTableau–A Step-by-Step guide–Seema Acharya,SubhashiniChellappan– Apress
- Learning Tableau 2019 Tools for Business Intelligence, data prep, and visual analytics Joshua N. Milligan-Packt
- Tableau for Dummies–Molly Monsey and PaulSochan-JohnWiley&Sons, Inc.,

IV. Recommended Co-Curricular Activities:

1. Assignments(in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging).
2. Student seminars(on topics of the syllabus and related aspects(individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data(Individuals or groups as teams))
4. Study projects(by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured(team activity))

BCA Big Data Honours
III Year V Semester
COURSE 14: Tableau for Data Visualization

Practical

Credits: 1

2hrs/week

LIST OF EXPERIMENTS:

1. Demonstration of installation of Tableau desktop software
2. Demonstration of start page of Tableau environment.
3. Bringing data from a text file by connecting from Tableau
4. Bringing data from a Excel file by connecting from Tableau
5. Bringing data from a Oracle Database by connecting from Tableau
6. Bringing data from a R-Data file by connecting from Tableau
7. Applying filters on data
8. Joining the data from different data sources
9. Performing union operations on the datasource
10. Creating and changing the measures and dimensions of various charts

MODEL QUESTION PAPER
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BCA Big Data Honours
III Year V Semester
COURSE 14: Tableau for Data Visualization
(w.e.f. 2025-26)

Time : 3 Hrs

Max Marks : 75

SECTION - A

Answer any Five of the following

5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following

5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

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SRI VENKATESWARA UNIVERSITY::TIRUPATI

BCA General Honours

III Year V Semester

COURSE 15: Big Data Acquisitions and Analysis

(w.e.f. 2025-26)

Theory

Credits: 3

3 hrs/week

Objective

Learn to develop Hadoop applications for storing processing and analyzing data stored in Hadoop cluster. The course is mainly covering Big Data tools for Data Transformation (Apache PIG), Data Analysis (HIVE) and for handling unstructured data HBase. To Understand the complexity and volume of Big Data and their challenges. To analyse the various methods of data collection. To comprehend the necessity for pre-processing Big Data and their issues

Outcome

1. Identify the various sources of Big Data
2. Able to collect and store Big Data from various sources
3. Able to write Pig Scripts- Extract, Transform and Load the data on HDFS
4. Able to write Hive Scripts- Extract, Transform, Load and Analyse the data present in HDFS
5. Able to write scripts to extract data from structured and un-structured data for analytics
5. Able to extract and process semi and un-structured data using HBase

Unit- I

Introduction To Big Data Acquisition: Big data framework – fundamental concepts of Big Data Management and analytics – Current challenges and trends in Big Data Acquisition. Map Reduce Algorithm- Hadoop Storage [HDFS], Common Hadoop Shell commands - Anatomy of File Write and Read, NameNode, Secondary NameNode, and DataNode - Hadoop Configuration – Pig Configuration – Hive Configuration - HBase Configuration.

Unit-II

Data Collection And Transmission: Big data collection – Strategies – Types of Data Sources – Structured Vs Unstructured data – ELT vs ETL – storage infrastructure requirements – Collection methods – Log files – sensors – Methods for acquiring network data (Libcap-based and zero-copy packet capture technology) – Specialized network monitoring softwares (Wireshark, Smartsniff and Winnetcap) – Mobile equipments, Transmission methods, Issues.

Unit-III

Apache Pig - Introduction - Pig features - Pig Architecture - Pig Execution modes, Pig Grunt shell and Shell commands. Pig Latin Basics: Data model, Data Types, Operators - Pig Latin Commands - Load & Store , Diagnostic Operators, Grouping, Cogroup, Joining, Filtering, Sorting, Splitting - Built-In Functions, User define functions. Pig Execution Modes: Batch Mode – Embedded Mode – Pig Execution in Batch Mode –Use cases - Map Reduce programs with Pig – Pig Vs SQL

Unit-IV

Hive: Introduction - Hive Features - Hive architecture -Hive Meta store - Hive data types - Hive Tables - Table types - Creating database, Altering database, Create table, alter table, Drop table, Built-In Functions - Built-In Operators, User defined functions(UDFs), View, Pig Vs Hive.

HiveQL–Introduction, HiveQL Select, HiveQL – MapReduce using HiveQL OrderBy, Group By Joins, LIMIT, Distribute By , Cluster By - Sorting And Aggregation – Partitioning: Static & Dynamic partitioning – Index Creation - Bucketing – Analysis of MapReduce execution – Hive Optimization – Setting Hivng Parameters. Comparison between MapReduce, Hive QL and SQL. UseCase: Implementation of MapReduce programs with HiveQL.

Unit-V

Hbase : HBasics, Features of HBase, Concepts, Clients, Example, Hbase Versus RDBMS, Limitations of HBase

Big Data Privacy And Applications: Data Masking – Privately identified Information (PII) – Privacy preservation in Big Data – Popular Big Data Techniques and tools –Applications- Social Media Analytics – Fraud Detection.

References

1. Bart Baesens, “Analytics in a Big Data World: The Essential Guide to Data Science and its Applications”, John Wiley & Sons, 2014.
2. Tom White “ Hadoop: The Definitive Guide” Third Edit on, O’reily Media, 2012.
3. Seema Acharya, Subhasini Chellappan, "Big Data Analytics" Wiley 2015.
4. Min Chen. Shiwen Mao, Yin Zhang. Victor CM Leung, Big Data: Related Technologies, Challenges and Future Prospects, Springer, 2014.
5. Michael Minelli, Michele Chambers Ambiga Dhiraj, “Big Data, Big Analytics : Emerging Business Intelligence and Analytic Trends”, John Wiley & Sons, 2013.
6. Raj. Pethuru “ Handbook of Research on Cloud Infrastructures for Big Data Analytics”, IGI Global.

BCA Artificial Intelligence Honours
III Year V Semester
COURSE 14: Big Data Acquisitions and Analysis

Practical

Credits: 1

2hrs/week

LIST OF EXPERIMENTS:

1. Hadoop Cluster Setup
 - Perform setting up and Installing Hadoop in its three operating modes:
 - o standalone
 - o Pseudo distributed
 - o Fully distributed
 - Use web based tools to monitor your Hadoop setup.
2. Install and Run Pig and also use Pig Shell commands to display the list of files in HDFS
3. Install and Run Hive and also use Hive Shell commands to display the list of files in
4. Install and Run HBase and also use HBase Shell commands to display the version and user of HBase
5. Use Hive to create, alter, and drop databases, tables, views, functions, and indexes
6. Write and execute Pig Script to Load data into a Pig relation without a schema
7. Write a Pig script to find the word count in a text file
8. Display the data present in a HBase table using Shell

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
III Year V Semester
COURSE 14: Big Data Acquisitions and Analysis

(w.e.f. 2025-26)

Time : 3 Hrs

Max Marks : 75

SECTION - A

Answer any Five of the following

5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following

5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

Note: **The question paper setter is requested to set question paper based on a model question paper and ensure coverage across all units equally.**