

FACULTY OF COMPUTER SCIENCE & IT

SYLLABUS

of

Additional / Optional paper for Specialization in Data Science

for

Bachelor of Science (Information Technology)

(Semester I-VI)

(Under Continuous Evaluation System)

(12+3 System of Education)

Session: 2022-23



**The Heritage Institution
KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)**

Bachelor of Science (Information Technology) Semester II
(Session 2022-23)

COURSE CODE: BITL-1116

COMPUTATIONAL DATA SCIENCE

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend terminology associated with data and its processing

CO2: Comprehend various types of functions in set theory

CO3: Apply Algorithms of polynomial algebra to solve problems

CO4: Apply various counting principles, permutations, combinations and averages to solve basic set of problems

Bachelor of Science (Information Technology) Semester II
(Session 2022-23)
COURSE CODE: BITL-2116
STATISTICAL TECHNIQUES FOR DATA SCIENCE

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend the key terminology of descriptive statistics and frequency distribution

CO2: Comprehend the basic Probability terms and their usage

CO3: Formulate hypothesis for basic problems and perform testing

CO4: Implement statistical techniques like Chi Square test and Analysis of variance

Bachelor of Science (Information Technology) Semester- III
(Session 2022-23)

COURSE CODE: BITL-3116
DATA VISUALIZATION

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend Importance and applications of data visualization

CO2: Acquaint with categories of data visualization tools

CO3: Apply basic and specialized visualization tools for representation of data

CO4: Apply advanced data visualization tools

Bachelor of Science (Information Technology) Semester IV
(Session 2022-23)

COURSE CODE: BITM-4118

FOUNDATION OF STATISTICAL COMPUTING

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend basics of Statistical Computing and managing data structures like vector, matrix etc.

CO2: Create, operate and manage lists and data frames

CO3: Apply control and I/O statements for generating outputs

CO4: Simulate various descriptive and analytical algorithms using R language along with their visualization

Bachelor of Science (Information Technology) Semester V
(Session 2022-23)

COURSE CODE: BITL-5116

DATA MINING AND DATA WAREHOUSING

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend data mining and knowledge discovery, process and applications of data mining

CO2: Identify various data mining techniques along with classification of data

CO3: Study and analyze architecture of data warehouse

CO4: Comprehend various types of data warehouse, tools and technologies used

Bachelor of Science (Information Technology) Semester VI
(Session 2022-23)

COURSE CODE: BITM-6115

DATA MINING TOOL

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the concept of data set and confusion matrix and implement it in WEKA tool

CO2: Describe data pre-processing tasks and association rule mining on data sets

CO3: Apply learned techniques to perform classification on data sets

CO4: Apply learnt techniques to perform clustering of data sets