

Syllabus
For
Value Added Program

Course Code: BCA -384

Course Name: Certificate Course in Data Science Basics

LEARNING OBJECTIVES:

This course will provide the learners the following: -

- To enable students, develop IT skills that are a pre-requisite in today's work environment.
- To equip them with basic computing skills that will enhance their employability in general.
- To enable the student to analyze and present information in a meaningful manner.

PRE-REQUISITES: None

COURSE OUTCOMES:

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

- Programming & working with data.
- Conduct a wide range of statistical test.
- Understand machine learning algorithm.

Unit 1

No. of Hours: 7

Understanding The Fundamentals Of Data Science , Knowledge Of Data Collection , Python Programming , Python Libraries , Principles, And Techniques Used In Data Science , Data Extraction , Data Transformation

Unit 2

No. of Hours: 7

Statistical Methods For Decision Making , Classification & Regression Algorithms , Introduction To Machine Learning , Probability Distributions, Hypothesis Testing, Correlation, And Regression Analysis , Data Transformation , Data Reduction , Classification , Decision Trees

HoD
BCA-TIAS

Coordinator
Internal Quality Assessment Cell (IQAC)
Tecnia Institute - Advanced Studies
New Delhi-110085

Unit 3**No. Of Hours: 8**

Exploratory Data Analysis , Data Visualization , Creating Plots, Charts, And Graphs , Data Preprocessing , Ethical Considerations , Data Privacy , Data Security, Responsible Use Of Data , Feature Selection , Data Science Ecosystem , Hands-On Experience , Real-World Datasets , Data Science Tools

Unit 4**No. Of Hours: 8**

Predictive Modelling , Critical Thinking And Problem-Solving , Types Of Machine Learning , Communication And Collaboration , Machine Learning Algorithm , Decision Trees and Random Forests , Evaluation metrics: Accuracy, Precision, Recall, F1-score, ROC Curve

TEXT BOOK:

1. Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" by Aurélien Géron, 2016.
2. Python Data Science Handbook" by Jake VanderPlas, 2016.
3. Data Mining: Concepts, Models, Methods, and Algorithms by Mehmed Kantardzic Publication Hadley Wickham. 2015

REFERENCE BOOK:

1. Python for Data Analysis" by Wes McKinney, 2014.
2. Data Science for Business" by Foster Provost and Tom Fawcett, 2014.
3. Data Science from Scratch: First Principles with Python" by Joel Grus, 2015.

Evaluation Pattern: On the basis of practical exam followed by viva.


HoD
BCA-TIAS


Coordinator
Internal Quality Management Cell (IQAC)
Tecnia Institute for Advanced Studies
New Delhi-110085