



Skillup Bharat

Training | Placements | Outsourcing

DATA SCIENCE



About Company

SkillUp Bharat is a leading platform that offers technical and non-technical courses designed to prepare students for industry challenges.

We provide internships, hands-on training, and placement opportunities, ensuring learners gain practical experience through real-time projects. Our programs focus on enhancing both technical and soft skills, making students job-ready.

WHY TO CHOOSE US!

- 1. Industry-Relevant Courses**
- 2. Hands-On Internships**
- 3. Real-Time Project Experience**
- 4. Placement Support**

Data Science Syllabus

Irrespective of any domain

Description

Skillup Bharat's Data Science course is a comprehensive training program designed to equip learners with the essential skills and knowledge to excel in the field of data science. The course covers everything from fundamental concepts in data handling, statistics, and exploratory data analysis (EDA) to advanced machine learning algorithms and big data technologies. Learners are introduced to popular programming tools and libraries such as Python, NumPy, Pandas, Matplotlib, and Scikit-Learn, making it easy for them to process, analyze, and visualize data.

The program emphasizes practical, hands-on learning by incorporating real-world datasets and projects into the curriculum. Participants will work on diverse projects including machine learning models, big data processing using tools like Hadoop and Spark, and even delve into deep learning and natural language processing (NLP) applications. Throughout the course, students gain exposure to industry use cases in areas like finance, healthcare, and retail, helping them understand how data science solutions are applied to solve real-world problems.

Additionally, Skillup Bharat's Data Science course offers guidance on cloud deployment, preparing learners to deploy machine learning models on platforms such as AWS and GCP. With a strong focus on job readiness, the course also includes interview preparation, resume building, and placement support to help participants kick-start their careers in the ever-growing field of data science.

Expectations and Goals

- Master Core Data Science Concepts
- Build Competence in Data Handling
- Develop Strong Analytical Skills
- Master Machine Learning Algorithms
- Gain Proficiency in Data Science Frameworks
- Solve Real-World Business Problems
- End-to-End Project Execution
- Understanding Machine Learning Models
- Big Data Knowledge

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Course Syllabus:

Module 1: Introduction to Data Science and Python Programming

- Overview of Data Science: Concepts and Career Paths
- Python for Data Science: Basics, Data Types, Functions, Loops
- Libraries: NumPy, Pandas for data manipulation
- Data structures, DataFrames, and handling large datasets
- Project: Analyze a dataset using Pandas to perform data cleaning and manipulation

Module 2: Data Visualization and Exploratory Data Analysis (EDA)

- Introduction to Data Visualization: Importance and Techniques
- Matplotlib, Seaborn for visualizing data insights
- Advanced visualization: Pair plots, Heatmaps, Subplots

- Exploratory Data Analysis (EDA) techniques
- Project: Perform EDA on a real-world dataset and create visualizations to highlight key insights

Module 3: Statistics and Probability for Data Science

- Basic Descriptive Statistics: Mean, Median, Mode, Variance
- Probability theory: Concepts of probability, conditional probability, Bayes theorem
- Hypothesis testing: Z-test, t-test, Chi-square test
- A/B testing and its real-world applications
- Project: Conduct a hypothesis test on a business dataset to derive actionable insights

Module 4: Machine Learning Basics

- Supervised Learning: Linear Regression, Logistic Regression
- Model evaluation: Metrics like Accuracy, Precision, Recall, AUC-ROC

- Introduction to Unsupervised Learning: K-Means Clustering, PCA
- Overfitting and Regularization techniques (Ridge, Lasso)
- Project: Build and evaluate a regression and classification model on a dataset

Module 5: Advanced Machine Learning and Model Tuning

- Decision Trees, Random Forests, and Gradient Boosting Models (XGBoost, LightGBM)
- Hyperparameter Tuning: GridSearchCV, RandomizedSearchCV
- Cross-validation techniques and performance metrics
- Ensemble Learning: Bagging, Boosting, Stacking
- Project: Build, tune, and optimize machine learning models on a complex dataset

Module 6: Working with Big Data and Cloud Platforms

- Introduction to Big Data: Hadoop, Spark for data processing
- Working with NoSQL databases: MongoDB, Cassandra
- Cloud platforms: AWS, Azure for Data Science
- Distributed computing and data pipelines with PySpark
- Project: Build a data pipeline to process and analyze large datasets using PySpark

Module 7: Deep Learning and Neural Networks

- Introduction to Neural Networks and Deep Learning
- Frameworks: TensorFlow, Keras for building neural networks
- Convolutional Neural Networks (CNNs) for image recognition
- Project: Build a deep learning model (e.g., CNN) for image classification

Module 8: Natural Language Processing (NLP)

- Text data preprocessing: Tokenization, Lemmatization, and Vectorization (TF-IDF, Word2Vec)
- NLP techniques: Sentiment analysis, Named Entity Recognition (NER)
- Transformer models and BERT for text classification
- Project: Implement a text classification model for sentiment analysis using BERT

Module 9: Data Science in Real-World Applications

- Case studies in various industries: Finance, Healthcare, Marketing, Retail
- Time series forecasting techniques: ARIMA, Prophet
- Recommender systems and collaborative filtering
- Project: Build a recommendation system for an e-commerce platform

Module 10: Capstone Project & Deployment

- End-to-end data science project: Data collection, cleaning, model building, and deployment
- Model deployment using Flask/Django
- Deploying models on cloud platforms like AWS, GCP
- Capstone Project: Complete an end-to-end data science project and deploy it in a real-world environment

Module 11: Placement Preparation and Interview Guidance

- Technical interview preparation: Data Science, Machine Learning, and Deep Learning
- Mock interviews and coding tests
- Resume building and LinkedIn optimization
- Outcome: Guidance for placements and job interviews in Data Science roles



CONTACT US!



CALL US ON :
+91 6361987951



MAIL US ON :
Info@skillupbharat.net



WEBSITE :
Skillupbharat.net



LOCATION :
**Jayanagar 9th Block East End Circle
Near Jaydeva Hospital, Bangalore 560041**



THANK YOU

Master New Skills, Unlock
New Opportunities!