



C D S P

# Certified Data Science Professional

#Python #Data Analysis #Data Visualization  
#BI Tool #Machine Learning #Deep Learning  
#NLP #OpenCV #Generative AI  
#Data Engineering & MLOPS

# The Synnefo Advantage

Synnefo Solutions is an IT company-based academy delivering industry-driven training with real-world exposure and expert mentorship.

| 100% Job Guaranteed Program

| AI-Integrated Curriculum

[ Live Projects & Internship

[ Realtime projects

Class mode details

Course duration: 10 months

[ Includes Internship & Capstone Projects ]



ONLINE



OFFLINE



HYBRID





# Course Overview

The **Certified Data Science Professional (CDSP)** program is a comprehensive, job-oriented course designed to transform beginners into industry-ready data professionals. This program focuses on converting raw data into actionable insights using **Python, modern analytics tools, and real-world methodologies.**

Throughout the course, learners will gain hands-on experience in **data analysis, data visualization, statistics, machine learning, and foundational AI concepts**, working on real-world datasets and practical business scenarios.

The curriculum is structured to help students understand patterns in both structured and unstructured data, build predictive models, and make data-driven decisions with confidence. Emphasis is placed on **practical implementation, project-based learning, and problem-solving skills** that are highly valued in today's data-driven industries.

## What You Will Learn

Students gain practical experience in analyzing datasets, building predictive models, visualizing insights, and working with machine learning, NLP, computer vision, and generative AI concepts using real-world projects

## Suitable for

• Freshers • Students • IT Professionals • Engineers

Freshers & Recent Graduates | Students from Engineering, Statistics, Maths or Commerce backgrounds | IT Professionals | Non-IT Professionals | Career Switchers | AI & Data Enthusiasts

# Training Features

- Live real-time projects & capstone work
- Hands-on lab access with real datasets
- Doubt-clearing & mentoring sessions
- Recorded classes (Online & Hybrid)
- Industry-certified trainers
- AI-integrated learning approach

## Key Modules

- ➔ **Python Programming Fundamentals**  
(Basics, OOP, File handling, Exception handling)
- ➔ **Data Handling & SQL**  
(NumPy, Pandas, Data Cleaning, SQL Queries & Joins)
- ➔ **Data Visualization & Statistics**  
(Ms Excel, PowerBI, Tableau, Matplotlib, Seaborn, EDA, Hypothesis Testing, Probability fundamentals, Statistics)
- ➔ **Machine Learning — Supervised**  
(Regression, Classification, Model Evaluation, Tuning)
- ➔ **Unsupervised Learning & NLP**  
(Clustering, PCA, Text Processing, NLTK)
- ➔ **Deep Learning & Computer Vision**  
(Neural Networks, CNN, RNN, LSTM, TensorFlow/Keras, OpenCV)
- ➔ **Generative AI & Deployment**  
(Transformers, HuggingFace, Prompt Engineering, RAG (Retrieval Augmented Generation), Vector Databases, AI Agents, LLMs, MLOPS, AWS, Docker, FastAPI/Flask)
- ➔ **Capstone Projects & Career Preparation**  
(ML/DL/NLP/LLM Projects, BI Projects, Resume & Portfolio Building)

# Careers

## Opportunities

- ✓ Junior Data Scientist
- ✓ Data Analyst
- ✓ Machine Learning Engineer (Trainee / Junior)
- ✓ Entry-Level AI Engineer
- ✓ Business Intelligence (BI) Analyst
- ✓ Junior NLP Engineer
- ✓ Junior Computer Vision Engineer
- ✓ Generative AI Engineer (Trainee)
- ✓ ML / AI Intern
- ✓ Entry-Level Data Science & AI Roles

## Certifications



Synnefo Course  
Completion Certificate



NACTET Certificate



Internship Certificate



# About Us

Synnefo is an ISO 9001:2015 certified, IT company based academy offering 100% job-guaranteed programs, supported by 50+ recruitment partners and NACTET affiliation.

With 5000+ students trained, we deliver industry-driven learning through live projects and internships.

Students gain hands-on exposure in real-time lab facilities with integrated NOC, SOC, and Data Center environments, along with an exclusive SDLC Hub.

Our programs are further strengthened by soft-skill training, mock interviews, international testing centers, and lifetime placement support, ensuring complete career readiness.

**Start your Data Science & AI career with guaranteed placement support.**

## Enquire Now



+91 773 601 3411



Near Maharajas  
Metro Station, Kochi

[www.synnefo.in](http://www.synnefo.in)

# DATA SCIENCE SYLLABUS



## Program Objective

This program is designed to transform learners into job-ready Data Scientists and AI Engineers by covering:

- Data Analytics
- Machine Learning
- Artificial Intelligence
- Generative AI
- Data Engineering & MLOps
- Real-world Projects & Deployment

## MODULE-WISE SYLLABUS

### MODULE1: PROGRAMMING WITH PYTHON

Duration: 2 Weeks

→ Topics Covered:

- Python Basics (Variables, Data Types, Operators)
- Control Flow (if, loops)
- Functions & Lambda
- Data Structures (List, Tuple, Dictionary, Set)
- File Handling
- Exception Handling

→ Outcome:

- ✓ Strong programming foundation
- ✓ Ability to write clean and structured code

## MODULE 2: OBJECT-ORIENTED PROGRAMMING (OOP)

Duration: 1 Week

→ Topics Covered:

- Classes & Objects
- Inheritance
- Polymorphism
- Encapsulation

→ Outcome:

- ✓ Ability to design modular and reusable code

## MODULE 3: MATHEMATICS FOR DATA SCIENCE

Duration: 1 Week

→ Topics Covered:

- Linear Algebra (Vectors, Matrices)
- Probability (Distributions, Bayes Theorem)
- Statistics (Hypothesis Testing)

→ Outcome:

- ✓ Understand mathematical intuition behind ML models

## MODULE 4: DATA ANALYTICS & DATA WRANGLING

Duration: 2 Weeks

→ Topics Covered:

- Data Collection (CSV, Excel, APIs)
- Data Cleaning & Preprocessing
- Missing Value Handling
- Feature Engineering
- Merging & Joining

→ Outcome:

- ✓ Ability to handle real-world messy data

## MODULE 5: DATA ANALYSIS WITH PYTHON

Duration: 2 Weeks

→ Topics Covered:

- NumPy (Arrays, Operations)
- Pandas (DataFrames, Groupby, Aggregation)
- Data Transformation

→ Outcome:

- ✓ Perform real-world data analysis

## MODULE 6: DATA VISUALIZATION & BI TOOLS

Duration: 2 Weeks

→ Topics Covered:

- Matplotlib, Seaborn
- Exploratory Data Analysis (EDA)
- Business Insights
- Power BI / Tableau Dashboards

→ Outcome:

- ✔ Convert data into meaningful business insights

## MODULE 7: MACHINE LEARNING (CORE)

Duration: 6 Weeks

→ Topics Covered:

✔ Supervised Learning:

- Linear Regression
- Logistic Regression
- KNN
- Decision Trees
- Random Forest

✔ Advanced Models:

- Support Vector Machines
- Feature Engineering

✔ Unsupervised Learning:

- K-Means Clustering
- PCA

- ✔ **Model Evaluation:**
  - Accuracy, Precision, Recall
  - ROC-AUC
  
- ✔ **Optimization:**
  - Cross Validation
  - Hyperparameter Tuning
  
- ➔ **Outcome:**
- ✔ **Build and evaluate ML models**

## MODULE 8: ADVANCED ML & NLP

**Duration: 4 Weeks**

- ➔ **Topics Covered:**
  - Ensemble Methods (XGBoost, LightGBM)
  - NLP (Text Cleaning, TF-IDF)
  - Word Embeddings
  - Sentiment Analysis
  - Topic Modeling
  
- ➔ **Outcome:**
- ✔ **Work with text data and advanced models**

## MODULE 9: DEEP LEARNING & AI

Duration: 3 Weeks

→ Topics Covered:

- Neural Networks
- Activation Functions
- Backpropagation
- TensorFlow / PyTorch
- CNN (Image Processing)
- RNN / LSTM

→ Outcome:

- ✓ Build deep learning models

## MODULE 10: GENERATIVE AI (LATEST INDUSTRY SKILLS)

Duration: 2 Weeks

→ Topics Covered:

- Transformers & Attention Mechanism
- HuggingFace
- Prompt Engineering
- RAG (Retrieval Augmented Generation)
- Vector Databases
- AI Agents

→ Outcome:

- ✓ Build AI-powered applications (Chatbots, Assistants)

## MODULE 11: DATA ENGINEERING & MLOPS

Duration: 3 Weeks

→ Topics Covered:

- Advanced SQL
- ETL Pipelines
- PySpark Basics
- MLflow
- Model Monitoring

→ Outcome:

- ✓ Build production-ready data systems

## MODULE 12: DEPLOYMENT & CLOUD

Duration: 2 Weeks

→ Topics Covered:

- Flask / FastAPI
- REST APIs
- Streamlit / Gradio Apps
- Docker Basics
- Cloud Deployment (AWS Basics)

→ Outcome:

- ✓ Deploy real-world AI applications

## MODULE 13: CAPSTONE PROJECTS & JOB PREPARATION

Duration: 2 Weeks

→ Projects:

- Sales Forecasting
- Customer Segmentation
- NLP Chatbot
- Generative AI Application

→ Career Support:

- Resume Building
- GitHub Portfolio
- Mock Interviews
- Case Studies

→ Outcome:

- ✓ Job-ready portfolio
- ✓ Confidence for interviews

## CAREER OUTCOMES

After completion, students can apply for:

- Data Analyst
- Data Scientist
- Machine Learning Engineer
- AI Engineer

Salary Range: ₹6 LPA → ₹30+ LPA