

# PYTHON SYLLABUS COPY

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**Engineered for skill enhancement.**



# PROGRAM HIGHLIGHTS

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## **Accredited Certificates :**

- ✓ Program approved ISO Certification

## **Internships :**

- ✓ Industry-relevant opportunities provided-

## **Placement Assistance :**

- ✓ Career guidance from industry experts-

## **Basic to Advanced Level Training :**

- ✓ Learn from experienced AI professionals .

## **Live & Recorded Lectures :**

- ✓ Flexible learning at your convenience .

## **Real-Time Projects :**

- ✓ Hands-on minor & major projects





# ABOUT US

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- **OUR MISSION :**

Nxt Sync is a pioneering EdTech company committed to bridging the gap between theoretical learning and practical application. Our mission is to empower students with cutting-edge AI skills that enhance employability and prepare them for a tech-driven future.

- **OUR VISION--UPSKILL:** Empowering minds for the future.
- **INNOVATE:** Fostering creativity and breakthroughs .
- **EXCEL:** Preparing industry-ready professionals.

# WHY PYTHON?

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- ➤ High Demand in Data Science, AI, and Web Development
- Beginner-Friendly yet Powerful
- Extensive Libraries & Frameworks
- Career Opportunities in Software Development, Automation, and Machine Learning
- Scalability in Web Applications & Data Analytics
- Integration with AI, IoT, and Cloud Computing



# LEARNING PATH

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1. Introduction to Python Programming
2. Python Fundamentals
3. Object-Oriented Programming (OOP) in Python
4. Data Handling & File Management
5. Web Development with Python
6. Data Science & Machine Learning with Python
7. Automation & Scripting
8. Python for AI & IoT
9. Industry Applications & Case Studies
10. Capstone Projects & Research





# DETAILED MODULE BREAKDOWN

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## **Module 1: Introduction to Python Programming**

- Overview of Python & Its Applications
- Installation & Setup
- Python IDEs (Jupyter Notebook, VS Code, PyCharm)

## **Module 2: Python Fundamentals**

- Variables, Data Types & Operators
- Control Structures (Loops & Conditionals)
- Functions & Modular Programming
- Exception Handling & Debugging



### **Module 3: Object-Oriented Programming (OOP) in Python**

- Classes & Objects
- Inheritance & Polymorphism
- Encapsulation & Abstraction
- Working with Modules & Packages

### **Module 4: Data Handling & File Management**

- File Handling (Reading/Writing Files)
- Working with CSV, JSON & XML
- Database Connectivity (MySQL, SQLite)
- Pandas for Data Manipulation

### **Module 5: Web Development with Python**

- Flask & Django Frameworks
- REST API Development
- Web Scraping with BeautifulSoup & Selenium
- Deployment & Hosting





## **Module 6: Data Science & Machine Learning with Python**

- NumPy & Pandas for Data Analysis
- Data Visualization with Matplotlib & Seaborn
- Introduction to Machine Learning with Scikit-Learn
- TensorFlow & Keras Basics

## **Module 7: Automation & Scripting**

- Web Scraping & Data Extraction
- Automating Repetitive Tasks
- GUI Development with Tkinter
- Working with APIs

## **Module 8: Python for AI & IoT**

- Introduction to AI & Deep Learning
- IoT Applications using Python
- Raspberry Pi & Python Integration
- Real-Time Data Processing





## **Module 9: Industry Applications & Case Studies**

- Python in FinTech & Healthcare
- Cybersecurity & Ethical Considerations
- Case Studies from Leading Tech Companies

## **Module 10: Capstone Projects & Industry Research**

- Hands-on Real-Time Python Projects
- Industry Collaboration & Research-Based Projects
- Python Portfolio Building
- Final Project Presentation



## ASSIGNMENT'S & ASSESSMENTS

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- Weekly hands-on assignments
- Mid-term Python mini-projects
- Final capstone Python project
- Live presentations & discussions





## TOOLS & FRAMEWORKS USED

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### **Development Tools:**

Python, Jupyter Notebook, PyCharm, VS Code

### **Libraries & Frameworks:**

NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn

Flask, Django, TensorFlow, Keras

### **Database & APIs:**

SQLite, MySQL, Firebase

Requests, BeautifulSoup, Selenium

### **Automation & Scripting:**

Tkinter, OpenCV, PyAutoGUI



## RECOMMENDED READING

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### **Python Programming:**

- "Automate the Boring Stuff with Python" - Al Sweigart
- "Python Crash Course" - Eric Matthes
- "Fluent Python" - Luciano Ramalho
- "Introduction to Machine Learning with Python" - Andreas C. Muller





# WHY CHOOSE NXTSYNC?

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- ✓ Industry-Aligned Python Curriculum
- ✓ Hands-on Real-World Projects
- ✓ Expert Mentorship & Career Guidance
- ✓ Flexible Learning Schedule
- ✓ ISO-Certified Python Training Program

**Start Your Python Programming Journey with NxtSync Today!**



THANK YOU

