



Department of Computer Science & Engineering

# COEP Technological University

(COEP Tech)

A Unitary Public University of Government of Maharashtra

w.e.f 21<sup>st</sup> June 2022

(Formerly College of Engineering Pune)

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## Post Graduate Diploma in Data Science & Artificial Intelligence

### 1. Course Objectives

The PGDDSAI program is designed to equip students with the knowledge and practical skills required to excel in the rapidly evolving fields of Data Science and Artificial Intelligence. The key objectives of the program are:

- To provide a strong foundation in Data Science and Artificial Intelligence concepts, principles, and methodologies.
- To develop proficiency in programming languages and tools commonly used in Data Science and AI, such as Python, R, and SQL.
- To train students in data collection, preprocessing, analysis, visualization, and interpretation of large datasets.
- To enable learners to apply Machine Learning and Artificial Intelligence techniques in diverse domains, including Natural Language Processing, Computer Vision, Robotics, and Predictive Analytics.
- To enhance analytical thinking, critical reasoning, and problem-solving abilities through data-driven approaches.
- To provide practical exposure through laboratory work, case studies, projects, and research-oriented activities.

### 2. Contents and Course Structure

#### Trimester I

Sr. No.	Course Name	Credits
1	Python Programming	3
2	Statistics and Probability	3
3	Database Management Systems and SQL	3

Sr. No.	Course Name	Credits
4	Machine Learning Fundamentals	4
5	Elective – I 1. Advanced SQL and NoSQL Databases 2. Cloud Computing for AI Applications	3
	Total	16

### Trimester II

Sr. No.	Course Name	Credits
1	Fundamentals of Artificial Intelligence	3
2	Deep Learning	4
3	Natural Language Processing	3
4	Big Data Analytics	4
5	Elective – II 1. Computer Vision 2. R Programming	3
	Total	17

### Trimester III

Sr. No.	Course Name	Credits
1	Generative AI and Large Language Models	3
2	MLOps and AI Deployment	3
3	Internship / Industry Project	6
	Total	12

## **Total Credits: 45**

The PGDDSAI program is a comprehensive and industry-oriented course designed for students and professionals aspiring to build successful careers in Data Analytics, Data Science, Machine Learning, Deep Learning, and Artificial Intelligence. The curriculum covers a wide range of topics from foundational concepts to advanced applications, enabling participants to develop the skills required to solve real-world analytical and business problems.

The program emphasizes hands-on learning through practical sessions, case studies, and industry-relevant projects. Key areas include programming using Python and R, database technologies, statistical analysis, machine learning, deep learning, big data analytics, natural language processing, generative AI, and AI deployment techniques. The program culminates in an industry internship/project, providing valuable real-world experience. Upon successful completion, participants will be awarded the **Post Graduate Diploma in Data Science and Artificial Intelligence (PGDDSAI)** from COEP Technological University.

### **3. Eligibility Criteria**

The program is open to:

- Final-year students and graduates of B.E./B.Tech. (Any Discipline), BSC, BCA, BCS, MCA, MCS, and M.Tech. (Any Discipline).
- Candidates possessing a background in Mathematics and Statistics.
- Freshers as well as working professionals seeking to enhance their skills and career prospects in Data Science and Artificial Intelligence.

Candidates appearing for their final-year degree examinations are also eligible to apply. Upon selection, such candidates shall be required to submit an undertaking at the time of admission and payment of program fees.

### **4. Faculty**

The teaching-learning process for the program will be conducted by a blend of experienced in-house faculty members and renowned experts from industry, research and development organizations, and reputed academic institutions, ensuring a balanced academic and industry-oriented learning experience.

### **5. Program Features and Facilities**

- **Live Interactive Sessions:** Instructor-led online sessions with in-depth coverage of concepts and applications.
- **Two-Way Communication:** Interactive learning through text and voice-based communication.
- **Industry Projects:** Exposure to multiple domain-specific projects, case studies, and discussions.
- **Cloud-Based Laboratory:** Access to cloud-enabled laboratories for practical hands-on training and project implementation.

### **6. Selection Procedure**

- Admission to the program shall be based on performance in **two rounds of Technical Interviews**.

## **7. Fee per Student**

- ₹ 2,50,000/-

## **8. Course Intake:**

- 60 Students