GOVERNMENT OF WEST BENGAL
Department of Youth Services & Sports
Standard Buildings, 32/1 BBD Bag (South)
Kolkata -700001

Memo No. 158 - DYS /2S-18/2025 **Dated – 05/02/2026**

To : The District Youth Officer ,

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Sub: Introduction of Advanced Technology Courses in Youth Computer Training Centres .

Whereas a proposal has been received from the Joint Council of Education – Partners of Youth Services for introduction of advanced technology-oriented courses in Youth Computer Training Centres (YCTCs) across West Bengal , with academic support from M/s Hewlett Packard Enterprise (HPE), as detailed in their application dated 11.05.2025;

And whereas the Department of Youth Services recognizes the need to upgrade skill training of youth in emerging domains such as Artificial Intelligence, Data Science, Python Programming, Digital Marketing and allied technologies for improving employability and aligning with global technological trends;

Whereas the Finance Department has agreed and approved the above courses with fee structures .

Now, therefore, the undersigned , is pleased to order that the following new courses shall be introduced in YCTCs in addition to the courses being run at present:

1. Courses Approved :-

Course Name	**Duration**	**Fee**
Certificate in Artificial Intelligence (CAI)	6 Months	₹6,000
Diploma in Artificial Intelligence (DAI)	12 Months	₹12,000
Diploma in Data Science (DDS)	12 Months	₹12,000
Certificate in Python Programming (CPP)	6 Months	₹6,000
Diploma in Digital Classroom Training (DCT)	12 Months	₹12,000
Certificate in Digital Marketing (CDM)	6 Months	₹6,000
Certificate in Green Skills with AI (CGS)	6 Months	₹6,000

2. Technology support & faculty development :

Faculty Training Programs should be undertaken first to upskill existing YCTC instructors for sustainability and long-term capacity building. Academic content, faculty development programmes and digital learning resources (Learning Management System) shall be made available , which YCTCs may suitably integrate into their academic delivery process in accordance with

institutional norms and applicable terms. Commercial involved and mode of engagement shall be separately intimated by this department or Joint Council of Education – Partners of Youth Services later on .

YCTCs shall function as physical learning centres for student enrollment, practical sessions, assessments and academic support as usual .

3. Fees collection :-

Course fees shall be collected as per the following instalment plan :

6 months courses – Rs. 2000 on Admission and Rs. 1000 per month for next 4 months.

12 months courses -

During 1st 6 month Semester - Rs. 2000 on Admission & Rs.1000 p.m. for 4 months

During 2nd 6 month Semester – Rs.2000 on Month 6 & Rs.1000 p.m. for 4 months.

4. Assessment, Certification & Govt. share :-

Govt. Share as per existing norms would be payable on course Fee. Assessment and certification will be done through the EEAS platform upon payment of examination fee as per existing system.

You are requested to send this order along with syllabus to all YCTCs under your control immediately so that the new courses can be rolled out from the April , 2026 .

OSD & Ex-Officio Secretary
Government of West Bengal

Enclosure : Approved Syllabus.

Memo No. 158/1(1)-DYS/25-18/2025 **Dated – 05/02/2026**

Copy forwarded to Mr. Sarvesh Garg , Project Manager , HPE with a request to send this to all YCTCs and extend necessary assistance to the YCTCs for rolling out these courses , hand holding of faculties , preparation of question bank etc. on urgent basis .

OSD & Ex-Officio Secretary
Government of West Bengal

Certificate in Artificial Intelligence

Duration: 6 months
Level: Beginner / Non-CS Background
Mode: Theory + Hands-on
Tools: Python, Google Colab, AI Platforms

SEMESTER 1 — AI TOOLS, AI THINKING & FOUNDATIONS
Goal: Make students comfortable with AI, confident using AI tools, and ready for ML in Sem 2.

1. Essential Computer & Digital Skills (AI-Oriented)
What is a computer & how AI runs on computers
Internet, browsers, cloud platforms
Files, folders, CSV, images, PDFs
Introduction to cloud notebooks
Overview of GitHub (conceptual)
CPU and GPU details

2. Introduction to Artificial Intelligence (Modern & Practical)
What is AI? (with daily-life examples)
AI vs Machine Learning vs Deep Learning
Types of AI applications:
Chatbots
Image recognition
Recommendation systems
Fraud detection
Limitations of AI

3. AI Tools & AI Platforms (Core Module)
Using ChatGPT for:
Learning
Coding
Data understanding
Overview of Google Gemini
Overview of Claude
AI for productivity:
Resume building
Report generation
Presentation creation
AI risks, hallucinations & validation
Object detection using YOLO and Annotations

4. Prompt Engineering (Hands-On & Job Relevant)
What is a prompt?

Prompt structure:
Instruction
Context
Output format
Zero-shot vs Few-shot prompting
Prompting for:
Data analysis
Coding
Chatbots
Prompt ethics & safety
Lab:
Build prompt templates
Compare outputs across AI tools

5. Python Programming for AI (Minimal but Practical)
Python basics:
Variables, data types
Basic DSA knowledge
Lists, dictionaries
Loops & conditions
Functions
Basic OOPs programming
Easy-Medium Level coding problems to sharpen logic
Running Python on Google Colab
Intro to AI libraries:
NumPy
Pandas
Matplotlib
Reading datasets (CSV)
What is ML? Difference between traditional programming and Machine Learning (just the basic idea to prepare for sem-2)
Relation of Machine Learning with AI (same as above)
Lab:
Load & analyze real datasets
AI-assisted coding

6. AI Ethics & Sustainable AI
Fair & Inclusive AI Systems
Data Stewardship & Privacy by Design
Safe Use & Misuse Prevention
Energy-Efficient & Low-Carbon AI
Human-centric AI and employment

7. Mini AI Projects (Tool-Based)
AI resume analyzer
AI content generator

AI data summary tool
Prompt-based chatbot (no ML yet)
End of Certificate course Outcome
Confident AI user
Prompt engineer
Python basics
Ready for ML

Diploma in Artificial Intelligence

Duration: 1 Year
Level: Beginner / Non-CS Background
Mode: Theory + Hands-on
Tools: Python, Google Colab, AI Platforms

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AI resume analyzer
AI content generator
AI data summary tool

Prompt-based chatbot (no ML yet)
End of Semester 1 Outcome
Confident AI user
Prompt engineer
Python basics
Ready for ML

SEMESTER 2 — MACHINE LEARNING & AI APPLICATIONS

Goal:
Move from using AI building AI systems

1. Machine Learning Foundations
What is Machine Learning?
ML vs traditional programming
Types of ML:
Supervised
Unsupervised
Reinforcement (conceptual)
Real-world ML use cases

2. Data Understanding & Preparation
What is data?
Features & labels
Numerical vs categorical data
Data cleaning:
Missing values
Scaling (intuitive)
Train-test split

3. Essential Math for ML (Only What's Needed)
Mean, median, variance
Distance concept (intuition)
Correlation (idea, not proofs)
Why math matters in ML

4. Core Machine Learning Algorithms (Hands-On)
Main strength of the course
Supervised Learning
Linear and logistic Regression
Decision Trees
Random Forest
Model evaluation:
Accuracy
Confusion matrix
Overfitting vs underfitting
Unsupervised Learning
K-Means Clustering

Applications:
Customer segmentation
Data grouping
Choosing number of clusters (intuition)
Lab (Google Colab):
Build, train & test models
Compare multiple models
Interpret results

5. Intro to Neural Networks (Conceptual + Demo)
What is a neural network?
Neurons & layers (intuition)
Where deep learning is used
Demo using prebuilt libraries

6. Building AI Applications
ML pipelines
Using trained models for prediction
Connecting ML models to simple apps
AI APIs overview

7. Capstone Project (Mandatory)
Choose ONE:
Option 1: AI Analysis Tool
Examples:
Sales prediction tool
Student performance analyzer
Customer segmentation system
Accident or risk analysis system
Option 2: AI Chatbot
Examples:
College helpdesk chatbot
Customer support chatbot
AI study assistant
FAQ chatbot using ML / NLP concepts

Must include:

Dataset
ML model (K-Means / Decision Tree / Random Forest etc.)
Model evaluation
Final presentation

FINAL OUTCOMES

AI tool expert
Prompt engineer

Python for AI
ML model developer
Project-ready for internships / entry-level roles

Certificate in Python Programming

Duration: 6 Months
Level: Beginner / Non-CS Friendly
Course Fee: 6,000
Primary Tools: Python, Google Colab, Pandas, scikit-learn

SEMESTER 1 — PYTHON PROGRAMMING, CODING & DATA FOUNDATIONS

Goal:
Make students strong Python coders who can solve basic placement problems and work with data confidently.

1. Essential Computer & Coding Environment

How data is stored: files, CSV, Excel
Folder structure & file paths
Introduction to Google Colab
Running Python scripts & notebooks
Debugging basics

2. Python Programming (CORE – Heavy Focus)

Python Fundamentals
Variables & data types
Input / output
Conditional statements
Loops (for, while)
Functions & scope
Basic error handling

Core Python Data Structures (VERY IMPORTANT)

Lists
Indexing & slicing
List methods
Tuples
When to use tuples vs lists
Dictionaries
Key–value operations
Frequency counting
Sets
Uniqueness & set operations
String manipulation

Certificate in Green Skills with AI

Eligibility: Passed: Class 10th or Higher
Duration: 48 hours or 6 months
Course Fees : 6000/-

GREEN FOUNDATIONS, AI TOOLS & APPLIED SKILLS

Goal:
Build environmental awareness, develop practical green skills, and enable learners to use AI tools and basic data analysis for sustainability, climate, and ESG use cases.

1. Essential Digital & Data Skills for Green Careers

- What is a computer & how digital systems support sustainability
- Internet, browsers, cloud platforms
- Files, folders, CSV, images, PDFs
- Introduction to cloud notebooks (Google Colab)
- Overview of GitHub (conceptual)
- CPU, GPU & energy consumption basics

2. Sustainability & Climate Change Fundamentals

- What are Green Skills?
- Climate change basics:

Greenhouse gases
Carbon cycle
Global warming

- Environmental challenges:

Air pollution
Water pollution
Waste management
Energy transition

- Introduction to ESG (Environmental, Social, Governance)
- Green jobs & future career paths

3. Artificial Intelligence for Sustainability

- What is AI? (sustainability-focused examples)
- AI vs traditional environmental monitoring
- AI applications in:

Air & water quality monitoring
Climate risk analysis
Energy efficiency & renewables
Smart agriculture
Waste management

- Limitations of AI in environmental decision-making

4. AI Tools & Platforms for Green Applications

- Using ChatGPT for:

Sustainability research
Climate & ESG report drafting
Environmental data understanding
• Overview of Google Gemini
• Overview of Claude
• AI for green productivity:
Emissions summaries
Sustainability presentations
Compliance checklists
• AI risks, hallucinations & greenwashing
• Intro to AI-based image/object detection:
Waste segregation
Environmental monitoring

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5. Prompt Engineering for Green Use Cases (Hands-On)

• What is a prompt?
• Prompt structure:
Instruction
Context
Output format
• Zero-shot vs Few-shot prompting
• Prompting for:
Climate data analysis
ESG summaries
Environmental compliance support
• Prompt ethics & responsible AI

Lab:

• Build sustainability-focused prompt templates
• Compare outputs across AI tools
• Validate AI-generated environmental insights

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6. Python Programming & Data Basics for Sustainability

• Python fundamentals:
Variables, data types
Lists, dictionaries
Loops & conditions
Functions
• Running Python on Google Colab
• Intro to libraries:
NumPy
Pandas
Matplotlib
• Reading environmental datasets (CSV)
• Basic data visualization for pollution & climate data

Lab:

• Create simple energy/emissions charts
• AI-assisted coding

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7. Sustainable AI & Green Computing

• Fair & inclusive AI systems for climate solutions
• Data stewardship & privacy in environmental data
• Preventing AI misuse & greenwashing
• Energy-efficient & low-carbon AI systems
• AI, automation & green employment

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8. Mini Green AI Projects (Tool-Based)

• AI-based air quality report generator
• Climate policy & news summarizer
• Energy consumption analysis tool
• Prompt-based sustainability chatbot

End of Certificate Course Outcomes

• Strong foundation in green skills & sustainability
• Confident user of AI tools for climate & ESG applications
• Basic Python & environmental data analysis skills
• Understanding of Sustainable AI principles
• Job-ready for entry-level green & sustainability support roles