

BLINK TECH SOLUTIONS

TRAINING BROCHURE

Empowering the Next Generation with AI and Data Science



BLINK TECH SOLUTIONS

TRAINING MODULE

We at Blink Tech Solutions are dedicated to inspiring young minds with cutting-edge technology. Through our training programs, students will gain the knowledge, skills, and tools they need to succeed in Artificial Intelligence (AI) and Data Science.



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CURRICULUM OUTLINE

Module 1: Foundations of Artificial Intelligence (Month 1)

- **Objective:** Provide an overview of AI concepts, history, and applications.
- **Topics:**
 1. What is Artificial Intelligence? History and Overview.
 2. Types of AI: Narrow AI, General AI, Super AI.
 3. AI in Daily Life (example search engines, virtual assistants).
 4. Ethical and Social Implications of AI.
- **Activities:**
 - Interactive discussion on AI ethics.
 - Case study: “How AI changed Zebra Medical Vision, DeepMind and IBM Watson Health.”

Questions Covered

- What are the ethical implications of AI in this specific industry?
- How can AI be used responsibly?
- How can AI be used to improve this industry?

Module 2: Understanding Data (Month 2)

- **Objective:** Understand how data plays a role in AI and Machine Learning (ML).
- **Topics:**
 1. The collection and analysis of data.
 2. Cleaning and Preprocessing Data.
 3. Introduction to Data Visualization.
 4. Tools: Microsoft Excel, Google Sheets, Python (pandas, matplotlib).
- **Activities:**
 - Data visualization using Python: Hands-on project.
 - The Group activity: To create datasets from observations from everyday life.

Module 3: Fundamentals of Machine Learning (Month 3)

- **Objective:** Understand the basics of machine learning and algorithms.
- **Topics:**
 1. What is Machine Learning?
 2. Supervised, Unsupervised, and Reinforcement Learning.
 3. Key Algorithms: Linear Regression, K-Nearest Neighbors, Decision Trees.
 4. Tools: Google Colab, Teachable Machine.
- **Activities:**
 - Build a simple ML model using Teachable Machine.
 - Mini-project: Predicting trends using linear regression.

Module 4: Neural Networks and Deep Learning (Month 4)

- **Objective:** Gain a deeper understanding of neural networks and their applications.
- **Topics:**
 1. Activation Functions, Layers, and Nodes of a Neural Network.
 2. Introduction to Deep Learning and Convolutional Neural Networks (CNNs).
 3. Practical Uses: Image Recognition, Natural Language Processing (NLP).
 4. Tools: TensorFlow, Keras.
- **Activities:**
 - Build a CNN to classify images (e.g., animals or objects).
 - Experiment with pre-trained models like MobileNet.

Module 5: AI for Real-World Applications (Month 5)

- **Objective:** Demonstrate how AI can solve practical problems.
- **Topics:**
 1. AI in Healthcare, Finance, and Education.
 2. The use of NLP in chatbots and sentiment analysis.
 3. The use of artificial intelligence in robotics and automation.

4. Tools: Hugging Face, OpenAI APIs.

- **Activities:**

- Using Dialogflow or Rasa, create a chatbot.
- Mini-project: Sentiment analysis using text data.

Module 6: AI Projects and Hands-On Learning (Month 6)

- **Objective:** Improve practical skills through guided projects.

- **Topics:**

1. How to design AI models: Defining the problem and planning the solution.
2. Implementing AI Projects (team-based).
3. Testing and Debugging AI Models.
4. Enhancing AI Projects with User-Friendly Interfaces.

- **Activities:**

- Project 1: Image classifier for plants or animals.
- Project 2: Predictive analytics model using historical data.

Module 7: AI Ethics, Safety, and Future Trends (Month 7)

- **Objective:** Investigate the use of AI and emerging technologies in a responsible manner.

- **Topics:**

1. AI and Ethics: Bias, Privacy, and Security.
2. Regulations and Guidelines for AI Development.
3. Future Trends in AI: Explainable AI, Quantum Computing.
4. Careers in AI and Pathways to Further Learning.

- **Activities:**

- Debate: "Should artificial intelligence be regulated as other industries are? "
- Research task: Determine the potential risks associated with a real-life AI system.

Module 8: Capstone Project and Presentation (Month 8)

- **Objective:** Showcase skills and synthesize knowledge.
- **Topics:**
 1. The design and development of an AI solution.
 2. Testing and Refining Models.
 3. Presentation of findings to non-technical and technical audiences.
- **Activities:**
 - Group or individual project: Design a solution using AI (e.g., a recommendation system, AI-based tutor, or game AI). At least three members should be involved in a group project. Each individual project should include a minimum of three prototypes. An evaluation and test should be conducted for each prototype.
 - Presentation Day: Showcase projects to peers, mentors, and family.
 - Feedback Session: Provide constructive feedback to peers and instructor (Blessing W O).

Additional Features

- **Weekly Assignments:** Short assignments to reinforce learning.
- **Guest Lectures:** Invite industry professionals to discuss AI trends.
- **Resource Kit:** Provide free online courses, readings, and tools
- **Certificates:** Recognize and award participants who have completed the course.

Outcomes by the End of the Bootcamp

Participants will:

1. Develop a solid understanding of foundational and advanced AI concepts.
2. Be proficient in tools like Python, TensorFlow, and data visualization libraries.
3. Develop real-world AI models and solutions.
4. Become an effective team player, a problem solver, and a good presenter.



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