



**National Institute of Electronics & Information Technology,
Aurangabad**
(राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान, औरंगाबाद)
**Ministry of Electronics & Information Technology
Government of India**

COURSE PROSPECTUS

Name of the Group: IT

Name of the Course: Artificial Intelligence Application Developer

Course Code: QG-4.5-IT-00358-2023-V1-NIELIT

Starting Date:23/10/2023 (Tentative)

Duration:540 Hours

Course Coordinator: Mr. Yogesh Kumar, Scientist B, NIELIT Aurangabad

Course Description:

The Artificial Intelligence (AI) Application Developer Course will cover the fundamentals of Python programming and libraries like NumPy and pandas used for data analysis. The course will also cover Visualization with Matplotlib. The course will lay stress on developing programming skills by providing practical exposure to the aspiring Python developers and also introduce to the concepts of Machine Learning. Participants from any background can develop the skills needed to become an AI Assistant.

Course Objectives:

- Gain AI technical confidence: Demystify AI and equip the future workforce with the confidence to learn and apply AI skills independently.
- Enhance employability for AI-related jobs: Build necessary technology, career growth and social skills on AI for jobs ahead
- Entrepreneurship Development.

Moreover, the objectives of this course are aligned to the National Policy on Electronics (NPE) by the Govt of India. Please refer this page: <http://meity.gov.in/esdm> for more details.

Skills gained by the participants after completing the Course: -

- Technical Skills – Programming and Coding, Data Science, Computer Vision, Natural Language Processing, Algorithmic and Computational Thinking
- Social Skills – AI ethics and bias reduction, critical thinking, problem solving, system mapping and solutions building
- Career Growth Skills – Self management skills like personal management, growth mindset. Entrepreneurial mindset, design & system thinking. Technical confidence and social emotional skills.

Expected Job Roles:

- AI & ML – Jr. Telecom Data Analyst
- AI -Machine learning Developer
- AI & Machine Learning (ML) Engineer
- AI Assistant



Course Structure:

Sr. No.	Module Title	Duration (Hours)
1	Programming with Python <ul style="list-style-type: none"> • Installing and configuring programming environment for python • Writing basic programs and understanding datatypes, operators, looping constructs, functions • Exploring various data structures • Learn to work on modules and packages 	60
2	Conceptualising Data Science with python <ul style="list-style-type: none"> • Concept of Data Science and tools used • Pre- Processing Concepts in Data Science • Introduction to Numpy and Working on N-d array • Learning Analysis on Numpy • Exploring Image handling using Numpy 	60
3	Data analysis and Visualization <ul style="list-style-type: none"> • Introduction to Pandas • Exploring Data Frames and Series • Learning EDA and Data Analysis • Performing Analysis on datasets • Introduction to Visualisation and Learning Tools for making Graphs and plots • Exploring analysis through visualisation 	90
4	Fundamentals of Machine Learning <ul style="list-style-type: none"> • Introduction to Machine Learning • Learning various ML categories • Learning to build models on datasets 	30
5	Performance and Accuracy of Machine Learning Models <ul style="list-style-type: none"> • Implement Predictive Analysis using various Regression and Classification algorithms • Learn and apply statistics used in Machine Learning • Using various metrics and Feature Engineering techniques. • Develop and Implement Project in Predictive Analysis using ML 	90
6	Fundamentals of Deep Learning <ul style="list-style-type: none"> • Understand and implement Deep Learning using Neural Networks • Work in Computer Vision using CNN and implement Image based models • Understand NLP and implement Natural Language Processing algorithms 	60



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9	Employability Skills <ul style="list-style-type: none">• Introduction to Employability Skills• Career Development & Goal Setting• Becoming a Professional in the 21st Century• Basic English Skills• Communication Skills• Financial and Legal Literacy• Entrepreneurship• Diversity & Inclusion• Constitutional values - Citizenship• Essential Digital Skill	60
10	On Job Training / Implementation of AI project	90
Total		540 Hours

Other Contents:

- I. Course Fees:** Course fee is Rs 40,000 + GST (* Nil for SC/ST Candidates)
- II. Registration Fee:** An amount of Rs.500/- (including all taxes as applicable) (non-refundable) should be paid at the time of registering for the course.
- III. Course Fee Instalment Structure:** - Can be paid in two instalments
- IV. Eligibility:** B.E./B.Tech. /BSc./MSc.in Electronics/Computer Science/IT/ (All allied branches), MCA/BCA. (Final Year students can also apply)
- V. Number of Seats :30**
- VI. Selection of candidates:** The candidates passed in the qualifying examination will be based on their marks obtained, subject to eligibility and availability of seats.
- VII. Test/Interview (if applicable) :** Not Applicable
- VIII. Counselling/Admission:** 16/10/2023 to 20/10/2023
- IX. Important Dates (if applicable) :**

Starting Date for Registration	10/08/2023
Last date to submit application form:	15/10/2023
Counselling/Admission	16/10/2023
Last Date for Payment of Fee	20/10/2023
Commencement of class work:	23/10/2023 (Tentative)

- X. Course Timings:** 02:00 Hrs to 05:00 Hrs in week days.
- XI. Lab Facilities:** LIST OF EQUIPMENT (For a batch of 30 students)

Sr. NO.	Description	Qty
1	Classroom	2
2	Student Chair	30
3	Student Table	15
4	Smart Interactive Display	2
5	White Board	2

6	Desktop computer with Accessories: installed with: NumPy Pandas Matplotlib Seaborn Scikit-Learn SciPy Scrapy Selenium PyTorch OpenCV Pyrealsense2 Intel bigdl-nano OpenVINO TensorFlow Keras Plotly Tabulate RSA QtPy, NLTK iPython Imbalanced-learn Graphviz, h5py Gensim, Beautiful soup	30
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For Registration go to

https://docs.google.com/forms/d/e/1FAIpQLScMiiNLDaFvb5Hxvj9x3knLxw-sHDqy8Fhu9CEs1ykVs_w_GQ/viewform

or Scan

