



# International Centre for Information Systems & Audit



Course Schedule NTP on

## “Introduction to Python programming language”

(For IA&AS Officers)

(29<sup>th</sup> July to 02<sup>nd</sup> August, 2024)

| Date                     | Topic  | Time (in hrs)        |
|--------------------------|--|----------------------|
|                          | <b>29-07-2024 (Day-1)</b>  |                      |
|                          | <b>Registration from 9:45 am</b>   |                      |
|                          | Inauguration   | 10:00 – 10:15        |
| <b>Session 1 (Day 1)</b> | <b>Introduction to Python :</b> Overview of Python, installation, IDE setup, basic syntax                            | 10:15-11:15          |
|                          | <b>Mr. Gaurav kumar Ome, AAO, RTI-Nagpur</b>   | <b>11:15 – 11:45</b> |
| <b>Session 2 (Day 1)</b> | <b>Variables and Data Types:</b> Variables, data types (int, float, string, boolean), type conversion                | 11:45 – 13:00        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |
|                          | <b>Lunch Break</b>   | <b>13:00 – 14:00</b> |
| <b>Session 3 (Day 1)</b> | <b>Control Structures:</b> Conditional statements (if, else, elif), loops (for, while)                               | 14:00 – 15:15        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |
|                          | <b>Tea Break</b>   | <b>15:15 – 15:45</b> |
| <b>Session 4 (Day 1)</b> | <b>Functions and Modules:</b> Defining functions, Lambda function, pip, parameters, return values, importing modules | 15:45 – 17:00        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |
|                          | <b>30-07-2024 (Day-2)</b>  |                      |
| <b>Session 1 (Day 2)</b> | <b>Data Structures:</b> Lists, tuples, sets, dictionaries: creation, manipulation, methods                           | 10:00 – 11:15        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |
|                          | <b>Tea Break</b>   | <b>11:15 – 11:45</b> |
| <b>Session 2 (Day 2)</b> | <b>Working with Strings:</b> String operations, formatting, methods, and manipulations                               | 11:45 – 13:00        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |
|                          | <b>Lunch Break</b>   | <b>13:00 – 14:00</b> |
| <b>Session 3 (Day 2)</b> | <b>File I/O:</b> Reading from and writing to files, handling exceptions  | 14:00 – 15:15        |
|                          | <b>Mr.Gaurav kumar Ome, AAO, RTI-Nagpur</b>  |                      |

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|                              | <b>Tea Break</b>   | <b>15:15 – 15:45</b> |
| <b>Session 4<br/>(Day 2)</b> | <b>Hands-on Practice:</b> Practical exercises covering Days 1-2 topics, using Kaggle                   |                      |
|                              | <b>Mr.Gaurav kumar Omee, AAO, RTI-Nagpur</b>   |                      |
| <b>31-07-2024 (Day 03)</b>   |  |                      |
| <b>Session 1<br/>(Day-3)</b> | <b>Introduction to NumPy:</b> Arrays, array operations, basic NumPy functions                          | 10:00 – 11:15        |
|                              | <b>Ms. Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                      |                      |
|                              | <b>Tea Break</b>   | <b>11:15 – 11:45</b> |
| <b>Session 2<br/>(Day-3)</b> | <b>Introduction to Pandas:</b> Series, DataFrames, data manipulation with Pandas                       | 11:45 – 13:00        |
|                              | <b>Ms. Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                      |                      |
|                              | <b>Lunch Break</b>   | <b>13:00 – 14:00</b> |
| <b>Session 3<br/>(Day 3)</b> | <b>Data Cleaning:</b> Handling missing data, duplicates, data transformation                           | 14:00 – 15:15        |
|                              | <b>Ms. Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                      |                      |
|                              | <b>Tea Break</b>   | <b>15:15 – 15:45</b> |
| <b>Session 4<br/>(Day 3)</b> | <b>Hands-on with NumPy and Pandas:</b> Practical exercises using NumPy and Pandas, using Kaggle        | 15:45 – 17:00        |
|                              | <b>Ms. Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                      |                      |
| <b>01-08-2024 (Day-4)</b>    |  |                      |
| <b>Session 1<br/>(Day-4)</b> | <b>Exploratory Data Analysis (EDA):</b> Techniques for EDA, summarizing data, initial data exploration | 10:00 – 11:15        |
|                              | <b>Ms Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                       |                      |
|                              | <b>Tea Break</b>   | <b>11:15 – 11:45</b> |
| <b>Session 2<br/>(Day-4)</b> | <b>Application of Python in Audit (Audit of Vahan) : A case study</b>                                  | 11:45 – 13:00        |
|                              | <b>Ms Niti Sethi, Consultant, CDMA,O/o the C&amp;AG of India</b>                                       |                      |
|                              | <b>Lunch Break</b>   | <b>13:00 – 14:00</b> |
| <b>Session 3<br/>(Day 4)</b> | <b>Data Visualization with Matplotlib:</b> Creating plots, charts, histograms, customizing plots       | 14:00 – 15:15        |
|                              | <b>Mr. Vaibhav Rawat, AAO, iCISA</b>   |                      |
|                              | <b>Tea Break</b>   | <b>15:15 – 15:45</b> |
| <b>Session 4<br/>(Day 4)</b> | <b>Data Visualization with Seaborn:</b> Advanced data visualization with Seaborn                       | 15:45 – 17:00        |

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|                              | <b>Mr. Vaibhav Rawat, AAO, iCISA</b>                                       |                      |
| <b>02-08-2024 (Day-5)</b>    |  |                      |
| <b>Session 1<br/>(Day-5)</b> | <b>Hands-on EDA: Practical exercises performing EDA on sample datasets</b> | 10:00 – 11:15        |
|                              | <b>Mr. Vaibhav Rawat, AAO, iCISA</b>                                       |                      |
|                              | <b>Tea Break</b>   | <b>11:15 – 11:45</b> |
| <b>Session 2<br/>(Day-5)</b> | <b>Case Studies : Application of Python in Audit</b>                       | 11:45 – 13:00        |
|                              | <b>Dr. Madhuri Gupta, Asst. Professor , Bennette University</b>            |                      |
|                              | <b>Lunch Break</b>   | <b>13:00 – 14:00</b> |
| <b>Session 3<br/>(Day 5)</b> | <b>Self-evaluation using Kaggle notebook</b>                               | 14:00 – 15:15        |
|                              | <b>Mr. Vaibhav Rawat, AAO, iCISA</b>                                       |                      |
|                              | <b>Tea Break</b>   | 15:15 – 15:45        |
|                              | <b>Valediction</b>   | 15:45 – 17:00        |