



CONTINUING EDUCATION CELL

NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR

G.E. Road, Raipur – 492010 (C.G.)

Ph- (0771)2253934

No./NITRR/CEC/2022/ 168

Date: 12/05/2022

NOTICE

Continuing Education Cell, NIT Raipur is going to offer a certificate course on “**Applied Data Analytics: A Practical Approach**”. The details are mentioned below

Course Name	Tentative schedule	Details
“Applied Data Analytics: A Practical Approach” (Online mode)	15th June,2022 to 14th July,2022 (01 hrs each day from 5.30PM to 6.30PM)	ANNEXURE-A

Interested candidates/organizations can apply in the prescribed application form (**Annexure-B** along with the details of course fee. **The course Fee is given as follows:**

Course Fee	Students of NIT Raipur	Rs. 750 + 18% GST
	Outside Students (other than NIT Raipur)	Rs. 1000 + 18% GST
	Faculty/ Industry Personnel	Rs. 2500 + 18% GST

The payment can be done either in the form of a Demand Draft (DD) in favour of “Director, NIT, Raipur” payable at Raipur or **through online mode** (*account details in the last page of this document*). **For online payment**, the scanned copy of the application form along with the proof of payment should be sent to cec_assistant@nitrr.ac.in by the due date (**10th June 2022**). For payment made through DD, the hard copy of the application along with the DD should be sent to the **Chairman, Continuing Education CELL, NIT Raipur, Raipur, Pin:492010** by the due date (**10th June 2022**). After payment, participant is required to fill following google form:

https://docs.google.com/forms/d/e/1FAIpQLSfFD6B1Q_fmIO62cb_ddImlh4YxQIB7GhYBq4Afu2_xLxeznQ/viewform

For any clarification, please contact the course coordinators, **Dr. Govind Gupta** (Email: gpgupta.it@nitrr.ac.in/Mobile: 9891952480) and **Dr. Mridu Sahu**, (Email: mrisahu.it@nitrr.ac.in/ Mobile: 9826501139) Assistant Professor, Department of Information Technology, NIT Raipur, For course details kindly refer to **Annexure- A**. Conduction of the course is subjected to enrolment of minimum number of students.

Dr. Subhojit Ghosh
Chairman,
CEC NIT, Raipur

Email - "Dr. SubhojitGhosh"<sghosh.ele@nitrr.ac.in>, cec_assistant@nitrr.ac.in



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ANNEXURE-A

Course Name: “Applied Data Analytics: A Practical Approach”

Objectives of Training Programme: The main objective of the course is to help the participants in developing a solid understanding of the Data Science and Analytics techniques like data pre-processing, predictive analysis, fundamental of data statistics, machine learning techniques and data visualization etc., with help of emerging data analytics tools like Python/R. The mathematical foundation for analyzing the data will add more knowledge about the data and this will help for decision support systems. This certificate course will help to enhance the knowledge of the participants in the field Data Science and Analytics. This course focus on the delivery of the lectures with full practical approach, case studies and by hands-on practical sessions on diversified range of topics related to Data Science and Analytics.

Learning Outcomes (LO): Upon successful completion of this Training Programme, the participant will be able to:

- Perform analysis of data using Python/R tool
- Perform model fitting using mathematical background.
- Become familiar with the wide range of enabling technologies for data interpretation, data visualization.
- Become families with Data Summarization and Data Generalization techniques.
- Identify appropriate methods for data analysis in various domains
- Formulate and design data analytic solutions.
- Manage large-scale, complex data and obtain the interpretation.
- Recognize and evaluate the opportunities, needs, and limitations of data.
- Interpret data analytics and communicate the implications to stakeholders.
- Attain data scientist and data engineer positions in a fast-growing field
- Accelerate progress into related Research and Development in Data Science and Big Data



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Course Content

Course Name: “Applied Data Analytics: A Practical Approach”

Module I: Introduction to the Data Science and Machine Learning Pipeline:

The art of Machine Learning, Data Volume, velocity and verities, Introduction to Linear Regression and Multiple Regression, Types of Machine Learning: Supervised Learning Introduction to Unsupervised Machine Learning, Introduction to Reinforcement Learning.

Module II: Introduction to the Statistical Analysis and related tools used in Data Analytics:

Fundamental Elements of Statistics, Qualitative and Quantitative Data, Summaries. Types of Data Distribution {Continuous Distribution and Discrete Distribution}, F-test, T-Test for Simple Liner Regression, Analysis of Variance, Analysis of Covariance, F Test and test for Multiple Regression.

Case-Study-1 using R/Python and data Pre-processing steps, **Case-Study-2** using R/Python and Feature engineering

Module III: Introduction to R Programming:

History of R programming. R and Its Feature, R & R studio Installation. Data Types, Handling Data in R, Data types conversion, Importing Data, Reading and Writing Files like PDF, JPEG, CSV etc, Manipulating Data like Cbind, Rbind, Sorting, Aggregation, dplyr. Conditional Statement and Function like if --- else, for loop, while loop, Repeat loop, Apply(), sApply(), tApply(). Predictive Modeling like Linear Regression, Multiple Regression analysis using R. **Case-Study-3** using R/Python and Unsupervised learning algorithms, **Case-Study-4** using Supervised learning algorithms.

Module IV: Data Visualization:

Introduction to Data Visualization Introduction to Data Visualization Software’s like Python, Tableau Python Installation and Basics Python Data Types , Input Function, Print Formatting, Flow Control, Python Libraries, Error Handling. **Case-Study-5** using Python Reinforcement Learning, **Case-Study 6** using Python, Data Visualization Python Libraries: Matplotlib, Seaborn, Bokeh, Plotly. Data Visualization **Case-Study-7**. Tableau Installation and Basics, Tableau Architecture and Server Components, the role of Tableau in Business Intelligence, **Case-Studies-8** using Tableau.



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Tentative Time-table of Certificate Course on “Applied Data Analytics: A Practical Approach”

*[*NOTE: Time of online classes will be finalized after consulting the participants/sponsoring organization.]*

Day	Content
Day 1	Module I: Introduction to the Data Science and Machine learning pipeline The art of Machine Learning, Data Volume, velocity and verities.
Day 2	Introduction to Linear Regression and Multiple Regression
Day 3	Types of Machine Learning: Supervised Learning
Day 4	Introduction to Unsupervised Machine Learning
Day 5	Introduction to Reinforcement Learning
Day 6	Module II: Introduction to the Science of statistics for data analytics: Fundamental Elements of Statistics
Day 5	Qualitative and Quantitative Data, Summaries.
Day 6	Types of Data Distribution {Continuous Distribution and Discrete Distribution}
Day 7	F-test, T-Test for Simple Liner Regression,
Day 8	Analysis of Variance, Analysis of Covariance, F Test and test for Multiple Regression.
Day 9	Module III: Introduction to R Programming: History of R programming, R and Its Feature, R & R studio Installation.
Day 10	Data Types, Handling Data in R, Data types conversion, Importing Data, Reading and Writing Files like PDF, JPEG, CSV etc,
Day 11	Manipulating Data like Cbind, Rbind, Sorting, Aggregation, dplyr.
Day 12	Conditional Statement and Function like if --- else, for loop, while loop, Repeat loop, Apply(), sAppLy(), tApply().
Day 13	Predictive Modeling like Linear Regression, Multiple Regression analysis Using R



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Day 14	Supervised learning algorithms Case Studies 1 using R
Day 15	Unsupervised learning algorithms Case Studies 2 using R
Day 16	Reinforcement learning algorithm Case Studies 3 using R
Day 17	Module IV: Data Visualization: Introduction to Data Visualization
Day 18	Introduction to Data Visualization Software's like Python, Tableau
Day 19	Python Installation and Basics
Day 20	Python Data Types, Input Function, Print Formatting,
Day 21	Flow Control, Python Libraries, Error Handling.
Day 22	Supervised Learning Case Study 4 using Python
Day 23	Unsupervised Learning Case Study 5 using Python
Day 24	Reinforcement Learning Case Study 6 using Python
Day 25	Data Visualization Python Libraries: Matplotlib, Seaborn, Bokeh, Plotly.
Day 26	Data Visualization Case Study 7
Day 27	Tableau Installation and Basics
Day 28	Tableau Architecture and Server Components
Day 29	The role of Tableau in Business Intelligence
Day 30	Case Studies 8 using Tableau



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ANNEXURE-B

APPLICATION FORM

Name of the Course Applied:

Name:

Father's/Husband's Name:

Date of Birth: Sex: Male Female

Occupation:

Qualification:

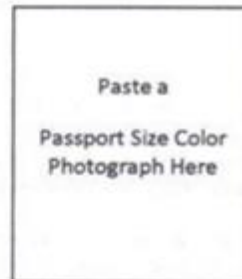
Address.....

.....

..... *E-mail ID:.....

Phone (with STD code): Residence: Mobile:

Aadhar Number :



Fee Details:

Amount: DD No.: Date:.....

Name of Bank.....

(Please write your name and course applied for in the back of the Demand Draft also.)

Date:

Signature of the Applicant

Note:

1. Time/Batch will be allotted as per the convenience of the applicant in general, however candidate may be asked to change the batch as per the requirement of the course.
2. The Fee Deposited for any course is non-refundable & non-transferable.
3. Information regarding the classes will be sent to through mail after registration.
4. If applicant is in Government service, they need to apply through proper channel.

For Office Use Only

Course and Time allotted:

Fee Details:

Place & Date:

Signature of CEC-Chairman



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ACCOUNT DETAILS FOR ONLINE PAYMENT

Bank Name:	State Bank of India
Account Number	38027633250
Account Holder Name	Director NIT Raipur
Branch Name and Address	NIT Branch, G. E. Road Raipur, Chhattisgarh 492010, India
IFSC Code	SBIN0002852
MICR Code	492002004
Swift Code	SBININBB646
PAN Card Number	AAAJN0643G
GSTIN Number	22AAAJN0643G1ZN