

ITEC (2023-2024)

Data Science and Analytics

1	Name of the Institute	Centre for Development of Advanced Computing, Mohali
2	Name of the Course	Data Science and Analytics
3	Proposed Dates and Duration of the Course in week	22 November, 2023 – 12 December, 2023 3 Weeks
4	Mode of Training	Offline
5	Start date	22 November, 2023
6	End date	12 December, 2023
7	Eligibility Criteria for Participants:	Technical Graduate/ Professionals with knowledge of basic computer programming (any language)
	A. Educational Qualification	
	B. Work Experience	Relevant Experience
	C. Age Limit	As per MEA guidelines
	D. Target group (Level of participants and target ministry/department etc. may be identified)	Government officials, Faculty members, Programmers
8	Aims & Objectives of the Course	<p>The aim and objectives of the course is to:</p> <ol style="list-style-type: none"> 1) Introduction to Python Programming Concepts 2) Imparting Knowledge for Use Cases of Python in Data Manipulation and Visualization <ul style="list-style-type: none"> • To Understand Python Libraries for Data Analysis
9	Content of the Course	<p>The course content are :</p> <ul style="list-style-type: none"> • Introduction to Python Programming and Data Analytics Python Basic Syntax, Data Types, Variables, Operators, Input/output, Strings, Python data structure: Lists, Tuples, Dictionaries, Sets., Control Structures: If, If- else, Nested if-else, Looping, For, While, Nested loops, Uses of Break & Continue, Functions and Exception Handling OOPs Concepts • Python Libraries for Data Analysis Mathematical Computing with Python (NumPy), Data Manipulation with Pandas, Machine Learning with Scikit-Learn, Introduction to Data Visualization in Python (matplotlib), Applications

		<ul style="list-style-type: none"> • Descriptive & Inferential Statistics Vector, Scalar, Matrix and operations on matrix, Probability, Basics of Statistics - Measures of Central Tendencies and Variance, Probability Distribution, Sampling Theory, Correlation, Regression, Outliers, Data Preparation & Visualization, Data cleaning and transformation, Various data plots using python libraries. • Exploratory Data Analysis • Machine Learning Concepts & Algorithms Supervised and Unsupervised Learning, Classification and Regression, Applications of Machine Learning, Model evaluation, Tools & Applications for Data Analytics, Case Studies.
10	Mode of Evaluation of Performance of the ITEC Participant	Viva voce / PPTs/Practical