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## **20MC215 DATA SCIENCE USING PYTHON**

### **Course Description and Objectives:**

Through this Data Science with Python course, students will learn how to process, clean, visualize and analyze data by using Python, one of the most popular data science tools. Students will learn cutting edge Machine Learning techniques in Python. Post the course learners will become an in-demand Data Scientists

### **Course Outcomes:**

Upon completion of the course, the student will be able to achieve the following outcomes:

<b>COs</b>	<b>Course Outcomes</b>	<b>POs</b>
<b>1</b>	Understand and analyze large amounts of data to bring out insights	<b>2</b>
<b>2</b>	Design and evaluate on relevant examples and cases make the learning more effective and easier	<b>3</b>
<b>3</b>	Gain hands-on knowledge through the problem-solving based approach of the course along with working on the skill set at the end of the course	<b>3</b>
<b>4</b>	Conduct the investigation on real time data sets using data science methods and techniques	<b>4</b>

### **Skills:**

- Learn to apply data science methods and techniques and acquire analysis skills.
- Basic data manipulation & data cleaning using Python and pandas Regular Expressions.

### **Syllabus**

#### **UNIT – I 9 Hours**

Introduction to data science, Python basics, Data processing using arrays, file input/output with arrays.

#### **UNIT – II 9 Hours**

Introduction to pandas data structure, computing descriptive statistics, essential functionality, Handling missing data.

#### **UNIT – III 9 Hours**

Reading and writing data with text format, Binary data formats, interacting with HTML and web API's.

#### **UNIT – IV 9 Hours**

Combing and merging data sets, data transformation and string manipulation.

## **UNIT – V**

**9 Hours**

Date and time data types and tools, Time series basics, Time zone handling.

### **Test Book:**

1. Wes McKinney, “Python for data analysis”, 1<sup>st</sup> Edition, O’Reilly Media, 2012.

### **Reference Books:**

1. Joel Grus, “Data Science from Scratch”, O’Reilly Media Inc., 2015.

2. Cathy O’Neil and Rachel Schutt “Doing Data Science”, 1<sup>st</sup> Edition, O’ Reilly Media Inc., 2013.