



**Requisition Letter**

Date: 18.02.2019

From  
Dr. K.P.Kaliyamurthie,  
Professor & Head,  
Department of CSE,  
Bharath Institute of Higher Education and Research,  
Chennai

To  
The Dean Engineering,  
Bharath Institute of Higher Education and Research,  
Chennai

Respected sir

Subject: Request of Permission to conduct a value-added course on “**Certificate Course on Python for Data science**” -Reg

With reference to above subject, I would like to bring to your kind notice that, our department interested to organize value added course “**Certificate Course on Python for Data science**” - Reg in our campus premises on **08.08.2016**, students would be participating in this course. We request you kindly to give permission to organize this event.

Venue: **CSE Smart Room**

Timing: 4:00 PM to 5:00 PM(AN) and Saturday (FN&AN).

Submitted to Principal for approval to organize this value-added course.

**HOD**

**HEAD OF DEPARTMENT**  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073. INDIA

**DEAN ENGINEERING**



# Bharath


**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**  
(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

## CIRCULAR

18.02.2019

The School of computing, Bharath Institute of Higher Education and Research is planned to conduct a certification value added course on **Certificate Course on Python for Data Science** for the benefit of II, III and IV year students. This course is scheduled from **22.02.2019** for 30 hours which includes theory and practical. The timings are 4:00 PM to 5:00 PM from Monday to Saturday.

| All registered students must attend all the classes without fail. The following faculty members are assigned to handle the course. S.NO | Name of the Faculty | Designation         |
|---|---------------------|---------------------|
| 1   | Mrs.C.Geetha        | Assistant Professor |
| 2   | Mrs.Anuradha        | Assistant Professor |

  
Head of Department

To  
Copy to CSE  
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HEAD OF DEPARTMENT  
Department of Computer Sci & Engg.,  
Bharath Institute of Higher Education & Research  
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Chennai-600 073. INDIA

## **COURSE OBJECTIVES**

In this course we plan to give students an overview of the field of Python with Data Science, AI and in-depth study into its enabling technologies and main building blocks. Students will gain hands-on experience in solving relevant problems through projects that will utilize existing Python tools. It is our objective that students will develop the skills needed to become a practitioner or carry out research projects in this domain.

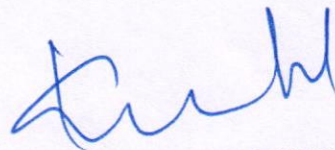
**Specifically, the course has the following objectives:**

**Students will learn**

- 1) Basic process of data science
- 2) Python and Jupyter notebooks
- 3) An applied understanding of how to manipulate and analyse inaccurate datasets
- 4) Basic statistical analysis and machine learning methods
- 5) How to effectively visualize results



**COURSE COORDINATOR**



**HEAD OF THE DEPARTMENT**

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## CERTIFICATE COURSE ON PYTHON FOR DATA SCIENCE

Date of Introduction of the Course: 22.02.2019

### COURSE SYLLABUS

**1. Introduction:**

Introduction to the data science- Process and value of data science-statistical concepts- basic techniques-machine learning and modelling.

**2. Python Basics:**

Basics of Python (Installation, Control structures), Arrays, Strings, Lists, Tuples, Dictionary, Sets, Range Control structures, Scripts and Functions, Graphs in python.

**3. Jupyter:**

Jupyter notebooks opensource -data cleaning- data transformation, numerical simulation, statistical modelling, data visualization and machine learning.

**4. Numpy:**

Numpy opensource, data manipulation, data processing in arrays, numpy machine learning concepts and standard library.

**5. Pandas:**

Introduction to Pandas, import data into spyder, creating copy of original data, attributes of data, indexing and selecting data, pandas with data -csv, excel, sql or even a webpage.

**6. Visualization:**

Data pre-processing and analysis, data exploration and visualization, parallel and distributed computing in case of bigdata.

**7. Exploring Data Analysis:**

Frequency table, Two way table, two way table- joint probability, marginal probability and conditional probability.

**8. Machine Learning:**

Basics of machine learning, Supervised and unsupervised algorithms, K- mean clustering, sci-kit library for machine learning.

**9. Working with Text and Databases:**

Sequence data methods, sequence data operations, Natural Language Processing and how to apply those ideas using the Natural Language Processing Toolkit (NLTK) library.



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## CERTIFICATE COURSE ON PYTHON FOR DATA SCIENCE

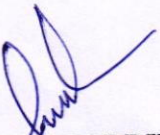
Date of Introduction of the Course: 22.02.2019

The timings are 4:00 PM to 5:00 PM from Monday to Saturday.

### Time Table & Lesson plan

| CLASS | DATE     | TOPIC   |
|-------|----------|---|
| 1     | 22.02.19 | <b>1.Introduction:</b><br>Introduction to the data science- process and value of data science   |
| 2     | 23.02.19 | Statistical Concepts  |
| 3     | 25.02.19 | Basic Techniques  |
| 4     | 26.02.19 | Machine Learning and Modelling  |
| 5     | 27.02.19 | <b>2. Python Basics:</b><br>Basics of Python(Installation, Control structures)                  |
| 6     | 28.02.19 | Arrays  |
| 7     | 01.03.19 | Strings   |
| 8     | 02.03.19 | Lists   |
| 9     | 04.03.19 | Tuples  |
| 10    | 05.03.19 | Dictionary, Sets  |
| 11    | 06.03.19 | Range Control structures  |
| 12    | 07.03.19 | Scripts and Functions   |
| 13    | 08.03.19 | Graphs in python  |
| 14    | 09.03.19 | <b>3. Jupyter:</b><br>Jupyter notebooks opensource -data cleaning- data transformation          |
| 15    | 11.03.19 | Numerical simulation, statistical modelling   |
| 16    | 12.03.19 | Data visualization and machine learning   |
| 17    | 13.03.19 | <b>4.Numpy:</b><br>Numpy opensource, data manipulation,   |
| 18    | 14.03.19 | Data processing in arrays,  |
| 19    | 15.03.19 | numpy machine learning concepts and standard library  |
| 20    | 16.03.19 | <b>5.Pandas:</b><br>Introduction to Pandas, import data into spyder,                            |
| 21    | 18.03.19 | Creating copy of original data, attributes of data, indexing and selecting data                 |
| 22    | 19.03.19 | Pandas with data -csv, excel, sql or even a webpage   |
| 23    | 20.03.19 | <b>6.Visualization:</b><br>Data pre-processing and analysis, data exploration and visualization |

|    |          |   |
|----|----------|---|
| 24 | 21.03.19 | Parallel and distributed computing in case of bigdata   |
| 25 | 22.03.19 | <b>7.Exploring Data Analysis:</b><br>Frequency table, Two way table, two way table-joint probability                  |
| 26 | 23.03.19 | Marginal probability and conditional probability  |
| 27 | 25.03.19 | <b>8. Machine Learning:</b><br>Basics of machine learning, Supervised and unsupervised algorithms                     |
| 28 | 26.03.19 | K- mean clustering, sci-kit library for machine learning  |
| 29 | 27.03.19 | <b>9.Working with Text and Databases:</b><br>Sequence data methods, sequence data operations                          |
| 30 | 28.03.19 | Natural Language Processing and how to apply those ideas using the Natural Language Processing Toolkit (NLTK) library |

  
COURSE COORDINATOR

  
HEAD OF THE DEPARTMENT

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## CERTIFICATE COURSE ON PYTHON FOR DATA SCIENCE

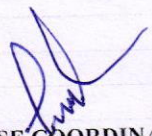
Date of Introduction of the Course: 22.02.2019

### School of Computing

### Registered Students Name List

| S.NO. | REG NO   | NAME                                 |
|-------|----------|--------------------------------------|
| 1     | U16CS043 | RAVI KUMAR                           |
| 2     | U16CS071 | MULINTY PRASHANTH REDDY              |
| 3     | U16CS075 | BASA RAMANJI NAIDU                   |
| 4     | U16CS083 | KOTHAKOTA SAI SIRISHA                |
| 5     | U16CS094 | GUGULOTH ANVESHA                     |
| 6     | U16CS102 | RAHUL P                              |
| 7     | U16CS109 | CHITTALA HARIKA                      |
| 8     | U16CS117 | S YUGANDHAR                          |
| 9     | U16CS122 | G RAJESH KUMAR                       |
| 10    | U16CS130 | NANDALLURI REDDYBASI REDDY           |
| 11    | U16CS139 | SHAIK ABBAS                          |
| 12    | U16CS149 | SUDIREDDY MUKESH REDDY               |
| 13    | U16CS156 | RIK ROY                              |
| 14    | U16CS161 | BIJJAM THIRUPATHI REDDY              |
| 15    | U16CS170 | GUDDU KUMAR                          |
| 16    | U16CS171 | GOGA VAMSI                           |
| 17    | U16CS180 | THATI RAGHAVA                        |
| 18    | U16CS187 | NALLABOTHU VENKATESH                 |
| 19    | U16CS195 | BOLLAM MANINDRA                      |
| 20    | U16CS211 | ARUL VIGNESH J                       |
| 21    | U16CS503 | MUKESH M                             |
| 22    | U17CS035 | SHAIK JAKEER HUSSAIN                 |
| 23    | U17CS071 | BELLAMKONDA KRISHNA VIVEK .          |
| 24    | U17CS109 | HEMAKUMAR R                          |
| 25    | U17CS146 | DINESH S                             |
| 26    | U17CS183 | LANKA VARUN KUMAR .                  |
| 27    | U17CS219 | MINPURI SUSHEEL VARDHAN REDDY .      |
| 28    | U17CS256 | ALASYAM PRAJUMNA                     |
| 29    | U17CS292 | RAVIPATI HARTHIK CHOWDARY .          |
| 30    | U17CS328 | JALLA MADHU KUMAR .                  |
| 31    | U17CS364 | GARAPATI BHARATH KUMAR .             |
| 32    | U17CN020 | VASIMALLA PRINCE                     |
| 33    | U17CN059 | NISHITHA M                           |
| 34    | U17CN096 | TELAPROLU VENKATA SAI CHANDRADEEP .  |
| 35    | U17CN135 | KARNATI SHARAN KUMAR .               |
| 36    | U17CN171 | PALAPARTHI BENSON MOSES .            |
| 37    | U17CN209 | RAGHUL B                             |
| 38    | U17CN249 | KATRAGADDA RAM CHARAN                |
| 39    | U17CS416 | MOTAPOTHULA JHANSI AISWARAYA LAKSHMI |

|    |          |                                 |
|----|----------|---------------------------------|
| 40 | U17CS456 | GUDISEVA SYAM SIVA VARA PRASAD  |
| 41 | U17CS493 | CHIKKALA SANJAN                 |
| 42 | U15CS008 | ANKAM MANJUNATH                 |
| 43 | U15CS013 | ARAVINDHAN K R                  |
| 44 | U15CS017 | ASHISH RANJAN                   |
| 45 | U15CS083 | KANDI MOUNIKA                   |
| 46 | U15CS094 | KOLUKULURI ADITHYA RAGHAV VARMA |
| 47 | U15CS105 | LALJEE                          |
| 48 | U15CS152 | PEDDAPALLY SAI VINAY            |
| 49 | U15CS153 | PERABATHULA SUNIL KUMAR         |
| 50 | U15CS162 | PRATHI VENKAT RANJITH KUMAR     |
| 51 | U15CS171 | RAGILLA SANTHOSH KUMAR          |
| 52 | U15CS710 | JAYANTHI..S                     |
| 53 | U15CS712 | N VENKAT SUBHASH                |
| 54 | U15CS194 | SHAIK SABIR                     |
| 55 | U15CS206 | SUJEET KRISHNA KUMAR K          |
| 56 | U15CS214 | VEERELLA RUPAS CHOWDARY         |
| 57 | U15CS220 | VIGNESH KUMAR R.J               |
| 58 | U15CS232 | NIKITA SHARMA                   |
| 59 | U15CS246 | J.SAI RAM MADHAV                |
| 60 | U15CS506 | S.R. ATHISH VISHNU              |

  
COURSE COORDINATOR

  
HEAD OF THE DEPARTMENT

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## CERTIFICATE OF PARTICIPATION

**This certificate is presented to**

NISHITHA M

For actively participating in the value added course "CERTIFICATE COURSE ON Python for Data Science" Conducted by School of Computing, BIHER from 22.02.2019 to 28.03.2019.

COURSE COORDINATORS

HEAD OF THE DEPARTMENT

DIRECTOR

## COURSE FEEDBACK FORM

|  |   |   |          |                |        |                        |       |                |        |
|--|---|---|----------|----------------|--------|------------------------|-------|----------------|--------|
| Academic Year  |   | 2018-2019                                     |          |                |        |                        |       |                |        |
| Term   |   |   |          |                |        |                        |       |                |        |
| Course Number  |   | Certificate Course on Python for Data Science |          |                |        |                        |       |                |        |
| Course Title   |   |   |          |                |        |                        |       |                |        |
| Number of Credits  |   |   |          |                |        |                        |       |                |        |
| Type of Course   | Regular   |   | Elective |                | Add-on |                        |       |                |        |
| <b>I. Information on the Respondent: (Tick (✓) Appropriately)</b>                    |   |   |          |                |        |                        |       |                |        |
| <b>1. Percentage of classes attended</b>   |   |   |          |                |        |                        |       |                |        |
|  | 0-20  |   | 20-40    |                | 40-60  | ✓                      | 60-80 |                | 80-100 |
| <b>2. Number of hours per week spent on the course (Other than lecture hours)</b>    |   |   |          |                |        |                        |       |                |        |
|  | 0-2   |   | 2-4      |                | 4-6    |                        | 6-8   |                | 8-10   |
| <b>3. Preparation for the course by the student:</b>                                 |   |   |          |                |        |                        |       |                |        |
| (i)  | Have done part of this course earlier                             |   | No       |                |        |                        |       |                |        |
| (ii)   | Has adequate prior exposure to the prerequisites                  |   | No       |                |        |                        |       |                |        |
| (iii)  | Had to pickup relevant additional topics through concurrent study |   | Yes      |                |        |                        |       |                |        |
| (iv)   | Have no exposure to the background material                       |   | No       |                |        |                        |       |                |        |
| <b>4. The expectations for taking the course by the student are:</b>                 |   |   |          |                |        |                        |       |                |        |
| (a)  | Enhance by skill base in the area of specializations              |   | Yes      |                |        |                        |       |                |        |
| (b)  | Get exposed to a relevant subject                                 |   | Yes      |                |        |                        |       |                |        |
| (c)  | Curiosity   |   | Yes      |                |        |                        |       |                |        |
| (d)  | Better Employment Opportunity                                     |   | Yes      |                |        |                        |       |                |        |
| (e)  | Complete Course requirements                                      |   | Yes      |                |        |                        |       |                |        |
| (f)  | To Improve CGPA   |   |          |                |        |                        |       |                |        |
| <b>About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)</b> |   |   |          |                |        |                        |       |                |        |
|  |   | A   | B        | C              | D      | E                      |       |                |        |
| 1.   | Pace of the Teaching/lecture                                      | ✓   |          |                |        |                        |       |                |        |
| 2.   | Comment of the Subject  | ✓   |          |                |        |                        |       |                |        |
| 3.   | Clarity of expression   | ✓   |          |                |        |                        |       |                |        |
| 4.   | Level of preparation  |   | ✓        |                |        |                        |       |                |        |
| 5.   | Level of interaction  | ✓   |          |                |        |                        |       |                |        |
| 6.   | Accessibility outside the class                                   |   | ✓        |                |        |                        |       |                |        |
| 7.   | Others (please specify)   |   |          |                |        |                        |       |                |        |
| <b>A: Excellent</b>  |   | <b>B: Very Good</b>                           |          | <b>C: Good</b> |        | <b>D: Satisfactory</b> |       | <b>E: Poor</b> |        |

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## COURSE FEEDBACK FORM

|  |   |  |          |                |        |                        |  |                |  |
|--|---|--|----------|----------------|--------|------------------------|--|----------------|--|
| Academic Year  |   | 2018-2019                                    |          |                |        |                        |  |                |  |
| Term   |   |  |          |                |        |                        |  |                |  |
| Course Number  |   | CERTIFICATE COURSE ON PYTHON FOR DATASCIENCE |          |                |        |                        |  |                |  |
| Course Title   |   |  |          |                |        |                        |  |                |  |
| Number of Credits  |   |  |          |                |        |                        |  |                |  |
| Type of Course   | Regular   |  | Elective |                | Add-on |                        |  |                |  |
| <b>I. Information on the Respondent: (Tick (✓) Appropriately)</b>                    |   |  |          |                |        |                        |  |                |  |
| <b>1. Percentage of classes attended</b>   |   |  |          |                |        |                        |  |                |  |
| 0-20   |   | 20-40  |          | 40-60          | ✓      | 60-80                  |  | 80-100         |  |
| <b>2. Number of hours per week spent on the course (Other than lecture hours)</b>    |   |  |          |                |        |                        |  |                |  |
| 0-2  |   | 2-4  |          | 4-6            |        | 6-8                    |  | 8-10           |  |
| <b>3. Preparation for the course by the student:</b>                                 |   |  |          |                |        |                        |  |                |  |
| (i)  | Have done part of this course earlier                             |  |          |                | NO     |                        |  |                |  |
| (ii)   | Has adequate prior exposure to the prerequisites                  |  |          |                | NO     |                        |  |                |  |
| (iii)  | Had to pickup relevant additional topics through concurrent study |  |          |                | YES    |                        |  |                |  |
| (iv)   | Have no exposure to the background material                       |  |          |                | NO     |                        |  |                |  |
| <b>4. The expectations for taking the course by the student are:</b>                 |   |  |          |                |        |                        |  |                |  |
| (a)  | Enhance by skill base in the area of specializations              |  |          |                | YES    |                        |  |                |  |
| (b)  | Get exposed to a relevant subject                                 |  |          |                | YES    |                        |  |                |  |
| (c)  | Curiosity   |  |          |                | YES    |                        |  |                |  |
| (d)  | Better Employment Opportunity                                     |  |          |                | YES    |                        |  |                |  |
| (e)  | Complete Course requirements                                      |  |          |                | YES    |                        |  |                |  |
| (f)  | To Improve CGPA   |  |          |                |        |                        |  |                |  |
| <b>About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)</b> |   |  |          |                |        |                        |  |                |  |
|  |   | A  | B        | C              | D      | E                      |  |                |  |
| 1.   | Pace of the Teaching/lecture                                      | ✓  |          |                |        |                        |  |                |  |
| 2.   | Content of the Subject  | ✓  |          |                |        |                        |  |                |  |
| 3.   | Clarity of expression   | ✓  |          |                |        |                        |  |                |  |
| 4.   | Level of preparation  |  | ✓        |                |        |                        |  |                |  |
| 5.   | Level of interaction  | ✓  |          |                |        |                        |  |                |  |
| 6.   | Accessibility outside the class                                   | ✓  |          |                |        |                        |  |                |  |
| 7.   | Others (please specify)   |  |          |                |        |                        |  |                |  |
| <b>A: Excellent</b>  |   | <b>B: Very Good</b>                          |          | <b>C: Good</b> |        | <b>D: Satisfactory</b> |  | <b>E: Poor</b> |  |

  
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