



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



BHARATH INSTITUTE OF SCIENCE AND TECHNOLOGY
No.173, Agharam Road, Selaiyur, Chennai , T.N - 600 073.

Requisition Letter

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

Date: 21.01.2019

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 “**Data Science For Engineers**” -Reg

With reference to above subject, I would like to bring to your kind notice that, our department interested to organize value added course on “**Data Science For Engineers** ” in our campus premises from 22.02.2019 for 30 hours


Our internal Professors would deliver lecture for the above mentioned course. 60 students would be participating in this course. We request you kindly to give permission to organize this.


Venue: **CSE Class room**

Timing : 1:30 PM to 4:30 PM Friday (AN) and

9.00 PM to 4.00 PM Saturday (FN&AN).

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


HOD/CSE


DEAN ENGINEERING

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



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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 **Data Science for Engineers** for the benefit of IV year students. This course is scheduled from 22.02.2019 for 30 hours which includes theory and practical. The timings are 1:30 PM to 4:30 PM from Friday (AN) and Saturday (FN&AN).

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	Dr.C.Nalini	Professor
2	Dr.C.Rajabhushanam	Professor

Head of Department

To

Copy to CSE

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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



CERTIFICATE COURSE ON DATA SCIENCE FOR ENGINEERS

Date of Introduction of the Course: 18.02.2019

COURSE OBJECTIVE

- ✓ Introduce Python as a programming language
- ✓ Introduce the mathematical foundations required for data science
- ✓ Introduce the ML supervised data science algorithms
- ✓ Introduce a data analytics problem
- ✓ Introduce a practical capstone case study

WHAT TO EXPECT

- ✓ Describe a flow process for data science problems (Remembering)
- ✓ Classify data science problems into standard typology (Comprehension)
- ✓ Develop Python codes for data science solutions (Application)
- ✓ Correlate results to the solution approach followed (Analysis)
- ✓ Assess the solution approach (Evaluation)
- ✓ Construct use cases to validate approach and identify modifications required (Creating)

COURSE SYLLABUS

I. Basic Statistics for Data Science

- Introduction to data science
- Statistics for Data Science
- Introduction to Data
- Descriptive Statistics

II. Python

1. Introduction

- What is Python?
- Why Data Science requires Python?
- Installation of Anaconda
- Understanding Jupyter Notebook

- Basic commands in Jupyter Notebook
- Understanding Python Syntax

2. Data Types and Data Structures

- Variables
- Strings
- Lists
- Sets
- Tuples
- Dictionaries

3. Control Flow and Conditional Statements

- Conditional Operators, Arithmetic Operators and Logical Operators
- If, Else if and Else Statements
- While Loops
- For Loops
- Nested Loops

4. Functions

- Lambda Functions
- Map, Filter and Reduce
- Modules and Packages

5. File Handling

- Create, Read, Write files
- Operations in File Handling
- Errors and Exception Handling

III. Data Analysis and Visualizations

1. Numpy

- Arrays
- Basic Operations in Numpy
- Indexing
- Array Processing

2. Pandas

- Series
- Data Frames
- Indexing and slicing
- Groupby
- Concatenating
- Merging Joining

- Missing Values
- Operations
- Data Input and Output
- Pivot
- Cross tab

3. Data Visualization

- Introduction to Matplotlib
- Line plots
- Histograms
- Box and Violin Plots
- Scatterplot
- Heatmaps
- Subplots
- Visualization with Seaborn

IV. Advance Statistics

1. Probability Distributions

- Discrete Probability Distributions
- Bernouli Distribution
- Binomial Distribution
- Poisson Distribution
- Continuous Probability Distributions
- Normal Distribution
- Standard Normal Distribution

2. Inferential statistics

- Hypothesis Testing
- Parametric Tests
- t- Test
- Z-Test
- ANOVA
- Non-Parametric Tests
- Chi – Square Test

Coral

COURSE COORDINATOR

[Handwritten Signature]

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CERTIFICATE COURSE ON DATA SCIENCE FOR ENGINEERS

Date of Introduction of the Course: 18.02.2019

The timings are 1:30 PM to 4:30 PM from Friday (AN) and Saturday (FN&AN)

Time Table & Lesson plan

CLASS	DATE	TOPIC
1,2	22.02.2019	I. Basic Statistics for Data Science <ul style="list-style-type: none"> • Introduction to data science • Statistics for Data Science • Introduction to Data • Descriptive Statistics
3,4,	22.02.2019	II. Python <ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> • What is Python? • Why Data Science requires Python? • Installation of Anaconda • Understanding Jupyter Notebook • Basic commands in Jupyter Notebook • Understanding Python Syntax 2. Data Types and Data Structures <ul style="list-style-type: none"> • Variables • Strings • Lists • Sets • Tuples • Dictionaries 3. Control Flow and Conditional Statements
5,6,	23.02.2019	
7,8,	1.03.2019	
9,10,	02.03.2019	
11,12,		
13,14,		
15,16,		

		<ul style="list-style-type: none"> • Conditional Operators, Arithmetic Operators and Logical Operators • If, Else if and Else Statements • While Loops • For Loops • Nested Loops <p>4. Functions</p> <ul style="list-style-type: none"> • Lambda Functions • Map, Filter and Reduce • Modules and Packages <p>5. File Handling</p> <ul style="list-style-type: none"> • Create, Read, Write files • Operations in File Handling • Errors and Exception Handling
<p>17,18,</p> <p>19,20,</p> <p>21,22,</p>	<p>08.03.2019</p> <p>09.03.2019</p>	<p>III. Data Analysis and Visualizations</p> <p>1.Numpy</p> <ul style="list-style-type: none"> • Arrays • Basic Operations in Numpy • Indexing • Array Processing <p>2. Pandas</p> <ul style="list-style-type: none"> • Series • Data Frames • Indexing and slicing • Groupby • Concatenating • Merging Joining • Missing Values • Operations • Data Input and Output • Pivot • Cross tab <p>3. Data Visualization</p> <ul style="list-style-type: none"> • Introduction to Matplotlib

		<ul style="list-style-type: none"> • Line plots • Histograms • Box and Violin Plots • Scatterplot • Heatmaps • Subplots • Visualization with Seaborn
<p>23,24, 25,26, 27,28, 29,30</p>	<p>09.03.2019 15.03.2019</p>	<p>IV.Advance Statistics</p> <p>1.Probability Distributions</p> <ul style="list-style-type: none"> • Discrete Probability Distributions • Bernouli Distribution • Binomial Distribution • Poisson Distribution • Continuous Probability Distributions • Normal Distribution • Standard Normal Distribution <p>2. Inferential statistics</p> <ul style="list-style-type: none"> • Hypothesis Testing • Parametric Tests • t- Test • Z-Test • ANOVA • Non-Parametric Tests • Chi – Square Test <p>USE CASES</p>

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COURSE COORDINATOR

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Course on Data Science for Engineers
School of Computing

Date of Introduction of the Course: 18.02.2019

Registered Students Name List

S.NO	REG.NO	NAME OF THE STUDENT
1	U16CS001	SANTOSH B
2	U16CS002	APARNA V M
3	U16CS003	NALAMOTHU SRIKANTH
4	U16CS007	SANAM NAGA VENKATA SAI KRISHNA
5	U16CS008	CHEEMIREDDIGARI ANKITHAREDDY
6	U16CS011	RAVURI MOUNIKA
7	U16CS018	JUPAKA SAIVARUN
8	U16CS019	PYDI VENKATA PRITHEESH NIHAR
9	U16CS030	JEEVAMEDHA M
10	U16CS031	SYED HAFEEZ HUSSAIN
11	U16CS035	RESHMA R
12	U16CS040	MOHAMMAD AHAMAD ALIKHAN
13	U16CS041	LAAVANYA G A
14	U16CS056	PRASANTH G
15	U16CS059	SRAVANI GADIPARTHI
16	U16CS060	PARUCHURU JYOTHI SATYA SIVA NAGA SWAROOP
17	U16CS061	NAGIREDDY GARI SANJUNATH REDDY
18	U16CS066	KOTTE BALAJI
19	U16CS067	ABDUL HASEEB
20	U16CS070	BANDIATMAKUR MADANMOHAN REDDY
21	U16CS072	GAVIREDDY SIVAMOHAN REDDY
22	U16CS073	MASHETTY SOUMITH
23	U16CS076	ARVIND S
24	U16CS077	A VINOOTHINA
25	U16CS079	VEGI BALAJI SATYA SAI GANESH
26	U16CS081	KADIVETI AJAY REDDY
27	U16CS083	KOTHAKOTA SAI SIRISHA
28	U16CS087	JOGA KANNABABU

29	U16CS103	ARUNACHALAM R
30	U16CS107	PRADIP KUMAR MOHANTY
31	U16CS108	PULLAGANTI VISWANADH
32	U16CS119	ARIKATLA PAVITHRA
33	U16CS120	ROSHAN KUMAR RAJ
34	U16CS125	THUMMALA CHALLA MANOJ
35	U16CS127	NULAKA RAJGOPAL REDDY
36	U16CS128	KAKUNURI BRAHMA REDDY
37	U16CS129	MANDIPALLI CHIDANANDA REDDY
38	U16CS130	NANDALLURI REDDYBASI REDDY
39	U16CS133	NAVULURI RAJENDRA MOHAN
40	U16CS134	HEMA S
41	U16CS136	MACHUNURU SYAM KUMAR REDDY
42	U16CS152	NALLAPU RAJESH
43	U16CS161	BIJJAM THIRUPATHI REDDY
44	U16CS162	YEMIREDDY SRINIVASA REDDY
45	U16CS165	MEKALA PANDU PREM KUMAR
46	U16CS166	PATIBANDLA SRI NAVEEN
47	U16CS174	GUNTUPALLI AKHILA
48	U16CS175	CHALUVADI KALYAN
49	U16CS177	VAKA MAHENDRA REDDY
50	U16CS178	TIPPAREDDY NARENDRA REDDY
51	U16CS183	ARAVINDASAMY R
52	U16CS185	MD TAJUDDIN HAWARI
53	U16CS189	CHAUHAN MAYANK SUNILKUMAR
54	U16CS196	RAMADUGU ANUSHA
55	U16CS213	TUFAN NARZARI
56	U16CS214	VIGNESH V
57	U16CS215	NIKUNJ KUMAR SINGH
58	U16CS219	HARINDRA REDDY
59	U16CS220	AFREEN
60	U16CS707	HANUMANTHU RAO

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COURSE CO ORDINATOR

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CERTIFICATE OF PARTICIPATION

This is Presented to

Mr. VIGNESH V

For actively participating in value added course on

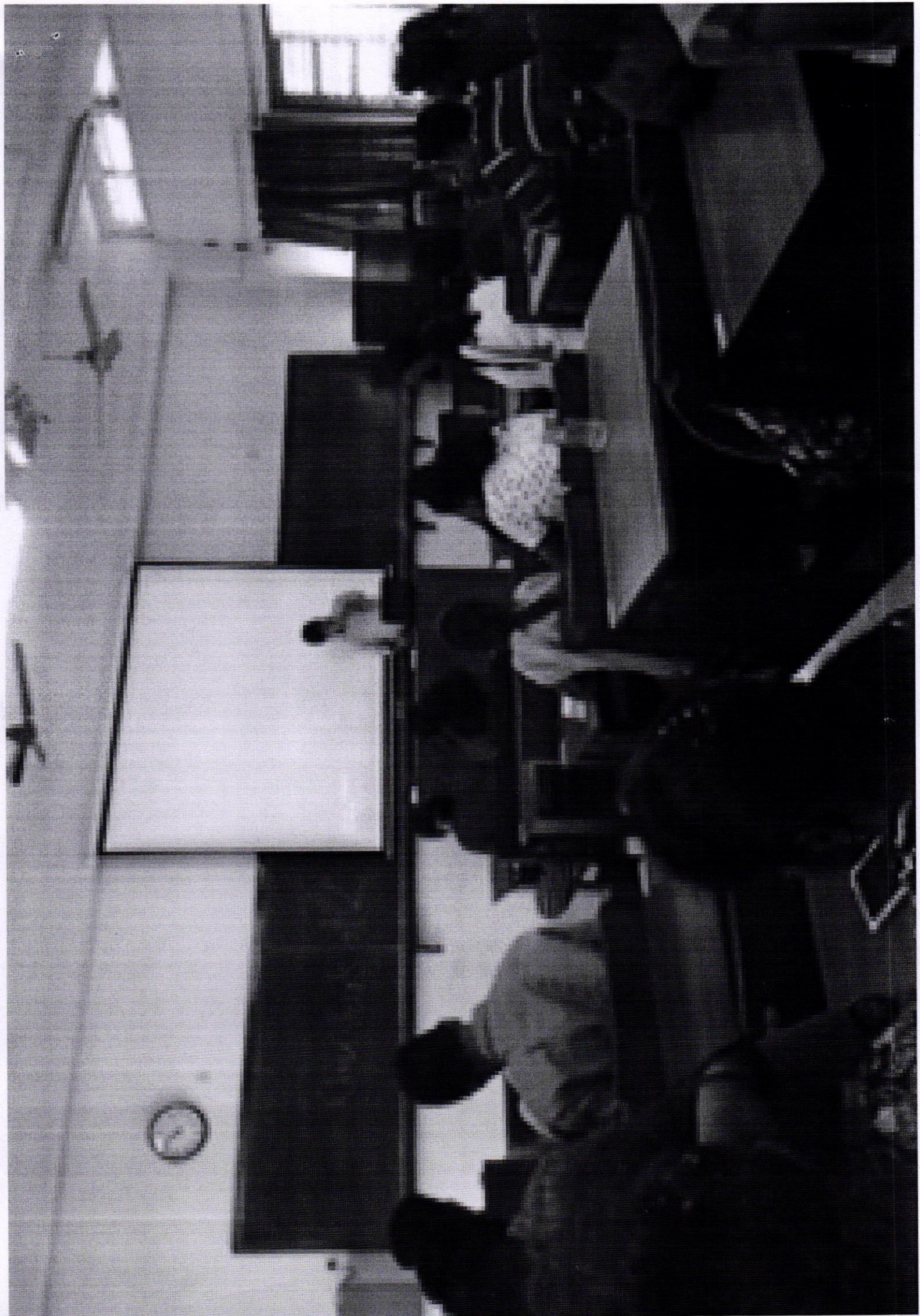
“DATA SCIENCE FOR ENGINEERS” conducted by

School Computing , BIHER from 22/02/2019 to 15/03/2019.

Coral
Coordinator

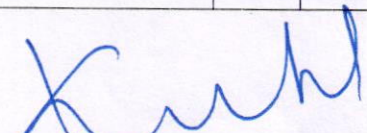
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HOD

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DIRECTOR



COURSE FEEDBACK FORM

Academic Year		2018 - 2019							
Term									
Course Number									
Course Title		Data Science for Engineers							
Number of Credits									
Type of Course	Regular		Elective		Add-on	✓			
I. Information on the Respondent: (Tick (✓) Appropriately)									
1. Percentage of classes attended									
0-20		20-40		40-60		60-80	✓	80-100	
2. Number of hours per week spent on the course (Other than lecture hours)									
0-2		2-4		4-6	✓	6-8		8-10	
3. Preparation for the course by the student:									
(i)	Have done part of this course earlier								yes
(ii)	Has adequate prior exposure to the prerequisites								yes
(iii)	Had to pickup relevant additional topics through concurrent study								yes
(iv)	Have no exposure to the background material								yes
4. The expectations for taking the course by the student are:									
(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								yes
About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)									
		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)								
A: Excellent		B: Very Good		C: Good		D: Satisfactory		E: Poor	


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COURSE FEEDBACK FORM

Academic Year		2018-2019			
Term					
Course Number					
Course Title		Data Science For Engineers			
Number of Credits					
Type of Course	Regular		Elective		Add-on
					↗

I. Information on the Respondent: (Tick (√) Appropriately)

1. Percentage of classes attended									
0-20		20-40		40-60	↗	60-80		80-100	
2. Number of hours per week spent on the course (Other than lecture hours)									
0-2		2-4		4-6		6-8	↗	8-10	
3. Preparation for the course by the student:									
(i)	Have done part of this course earlier								No
(ii)	Has adequate prior exposure to the prerequisites								yes
(iii)	Had to pickup relevant additional topics through concurrent study								yes
(iv)	Have no exposure to the background material								yes
4. The expectations for taking the course by the student are:									
(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								yes

About the Instructor: Information on the Respondent: (Tick (√) Appropriately)

		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)					

A: Excellent	B: Very Good	↗ C: Good	D: Satisfactory	E: Poor
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