

# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

## DEPARTMENT OF INFORMATION TECHNOLOGY

Date: 16/07/2022

### ACTIVITY REPORT

<b>Title of activity:</b>	In-house Training Module on "Data Science"
<b>Duration of activity:</b>	11 July, 2022 to 16 July, 2022
<b>Number of participants:</b>	20
<b>Organized by:</b>	Department of Information Technology
<b>Brief Description of the activity:</b>	<p>The training module was conducted with an intent to equip the internal faculty members of other departments with the concepts and tools of Data Sciences. The contents delivered during the training module are described briefly as:</p> <ul style="list-style-type: none"><li>• Day-1: The module started with an introduction to the concepts of data science, its scope, applications etc., delivered by Dr. Dhananjay Bisen.</li><li>• Day-2: During the second day of the module, the concepts of Python programming were discussed with hands-on practice problems. The sessions for this day were delivered by Mr. Mir Shahnawaz Ahmad.</li><li>• Day-3: The sessions for this day were delivered by Dr. Dhananjay Bisen, during which he discussed some important libraries of Python which help to implement the concepts of data sciences. The libraries discussed were numpy for numerical computations and pandas for data manipulations. All the sessions were accompanied by hands-on practice problems.</li><li>• Day-4: On day 4 Dr. Dhananjay Bisen discussed the working and uses of matplotlib library for the visualization of data and results. After that Mr. Mir Shahnawaz Ahmad described various descriptive statistical methods used in data science and implemented the same using python programming. The day ended with the discussion by Dr. Bhagat Singh Raghuwanshi regarding pre-processing of data. All the sessions were interactive and accompanied with hands-on practice on the related tools.</li><li>• Day-5: Dr. Bhagat Singh Raghuwanshi started the day with the recapitulation of previously discussed concepts, then he discussed the concepts and methods of normalization of data, standardization of data. He also described the implementation of some significant machine learning techniques which included: linear regression, logistic regressions, classification. The day ended with the session of Mr. Mir Shahnawaz Ahmad by discussing Unsupervised learning, reinforcement learning and their applications. Also a final assessment was conducted at the end.</li><li>• Day-6: This day was specifically dedicated for any doubt clarification and further discussion regarding the concepts already covered during the module, in Online mode.</li></ul> <p>During all the sessions of the training module a thorough hands-on practice was carried out using Google Colab, Spider, Jupyter, Anaconda etc., to clearly explain and implement the concepts of data science. Daily quizzes were conducted with a final assessment at the end of the training module.</p>
<b>Name of the Trainers:</b>	<ul style="list-style-type: none"><li>• Dr. Bhagat Singh Raghuwanshi</li><li>• Dr. Dhananjay Bisen</li><li>• Mr. Mir Shahnawaz Ahmad</li></ul>

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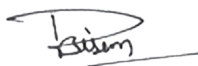
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<b>Objectives of the activity:</b>	<ul style="list-style-type: none"><li>● To provide the fundamental knowledge of Data Science.</li><li>● To present the basic representation and exploratory data analysis used in Data Science.</li><li>● To understand the working of techniques used in Data Science.</li></ul>
<b>Outcomes of the activity:</b>	After completing the activity, the participants were able to: <ul style="list-style-type: none"><li>● define different Data Science techniques.</li><li>● illustrate various tools used for Data Science techniques.</li><li>● apply data visualization techniques to solve real world problems.</li><li>● build exploratory data analysis for Data Science methods.</li><li>● apply Data Science techniques for solving real world problems.</li><li>● evaluate the performance of algorithms in data science.</li></ul>
<b>Mode of activity:</b>	Offline in IBM Lab, Dept. of IT



**Dr. Bhagat Singh Raghuwanshi**



**Dr. Dhananjay Bisen**



**Mr. Mir Shahnawaz Ahmad**



**Dr. Akhilesh Tiwari**

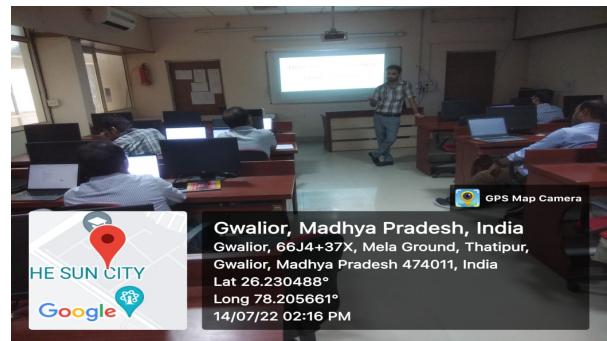
(Prof. & Head)

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### Some Glimpses of the Activity:



*Shankar*

*Prasanna*

*Abhinav*



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### Event Schedule:

Day	Time	Course Contents	Trainer Name	Mode of Delivery
Day 1 (11/07/ 2022)	11:00 am to 12:00 noon	<b>SESSION 1:</b> Need for data science, benefits and uses, facets of data, data science process.	Dr. Dhananjay Bisen	Lecture cum discussion mode
	02:00 pm to 04:00 pm	<b>SESSION 2:</b> <i>Rescheduled due to Election duty</i>	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Hands on/ Experimentation based mode
Day 2 (12/07/ 2022)	11:00 AM to 1:00 PM	<b>SESSION 1:</b> Introduction of basics python tool, Setting working Directory, Creating and saving a script file, File execution, removing variables from environment, clearing environment, Commenting script files.	Mr. Mir Shahnawaz Ahmad	Lecture cum discussion mode with hands-on
	02:00 pm to 03:45 pm	<b>SESSION 2:</b> Control structures, loop, Functions, data structures: Lists, Arrays, Tuples, Dictionary, Sets.	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Hands on/ Experimentation based mode
	04:00 PM to 05:00 PM	<b>Session-3</b> NumPy library. <i>(Rescheduled session)</i>	Dr. Dhananjay Bisen	Lecture cum discussion mode with hands-on
Day 3 (13/07/ 2022)	11:00 am to 12:00 noon	<b>SESSION 1:</b> Introduction to Pandas library. Data frame and data frame related operations, Reading Dataset file.	Dr. Dhananjay Bisen	Lecture cum discussion mode with hands-on
	12:15 PM to 01:15 PM	<b>SESSION 2:</b> Data Collection: Getting to know your data, Types of Data, Data collection strategies, Data Pre-processing, Feature engineering, Exploratory Data Analytics	Dr. Bhagat Singh Raghuwanshi	Hands on/ Experimentation based mode
	02:00 pm to 04:00 pm	<b>SESSION 3:</b> Additional/remedial sessions for those participants who missed any session due to other duties.	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Hands on/ Experimentation based mode
Day 4 (14/07/ 2022)	11:00 am to 12:00 noon	<b>SESSION 1:</b> Descriptive Statistics: Mean, Standard Deviation, Skewness.	Mr. Mir Shahnawaz Ahmad	Lecture cum discussion mode with hands-on
	02:00 pm to 04:00 pm	<b>SESSION 2:</b> Data Cleaning and Preparation, Handling Missing Data, Data Transformations, Removing Duplicates, Replacing Values, Detecting Outliers.	Dr. Bhagat Singh Raghuwanshi	Hands on/ Experimentation based mode
	04:15 PM to 05:30 PM	Additional/remedial sessions for those participants who missed any session due to other duties.	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Hands on/ Experimentation based mode
Day 5 (15/07/ 2022)	11:00 am to 12:00 noon	<b>SESSION 1:</b> Data visualization: Scatter plot, Line plot, Bar plot, Histogram, Box plot, Pair plot with matplotlib and seaborn libraries.	Dr. Bhagat Singh Raghuwanshi	Lecture cum discussion mode with Hands on
	02:00 pm to 03:00 pm	Additional/remedial sessions for those participants who missed any session due to other duties.	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Lecture cum discussion mode with Hands on
	03:00 pm to 04:30 pm	<b>SESSION 2:</b> Work on linear regression, logistic regression, Unsupervised learning: Clustering, Reinforcement learning	Dr. Dhananjay Bisen Dr. Bhagat Singh Raghuwanshi	Hands on/ Experimentation based mode
	04:30 pm to 05:00 pm	Final Assessment	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	-
Day 6 (16/07/ 2022)	09:00 am to 10:00 am	Additional/remedial sessions for those participants who missed any session due to other duties.	Dr. Bhagat Singh Raghuwanshi Dr. Dhananjay Bisen Mr. Mir Shahnawaz Ahmad	Lecture cum discussion mode with hands-on

\*Also a quiz will be conducted at the end of each day.





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### Event Attendance:

S. No.		Faculty Name		Dept.	Attendance for in-house training module on "Data Science"									
					11 July 2022 Session-I	12 July 2022 Session-III	12 July 2022 Session-II	13 July 2022 Session-I	13 July 2022 Session-II	14 July 2022 Session-I	14 July 2022 Session-II	15 July 2022 Session-I	15 July 2022 Session-II	
1	Dr. Chayan Gupta	Civil Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
2	Dr. Abhilash Shukla	Civil Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
3	Prof. Vaibhav Shivhare	Mechanical/Auto mobile Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
4	Dr. Ashish Agrawal	Mechanical/Auto mobile Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
5	Dr. Nitin Upadhyay	Mechanical/Auto mobile Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
6	Prof. Ajay Singh Raiput	Mechanical/Auto mobile Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
7	Prof. Nipun Gupta	Electrical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
8	Prof. Saurabh Kumar Raiput	Electrical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
9	Prof. Nikhil Paliwal	Electrical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
10	Dr. Vikram	Electrical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
11	Prof. Kuideep K. Swarnkar	Electrical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
12	Dr. Rahul Dubey	Electronics Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
13	Dr. Varun Sharma	Electronics Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
14	Dr. Shubhi Kansal	Electronics Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
15	Dr. Sushmita Choudhary	Electronics Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
16	Dr. Atul Kumar Ray	Mathematics and Computing	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
17	Dr. Minakshi	Mathematics and Computing	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
18	Prof. Anish P. Jacob	Chemical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
19	Dr. Shourabh Singh Raghuvanshi	Chemical Engg.	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
20	Mohesh Parmar	CSE	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present


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### Result of Daily Quizzes, Final Assessment & Grades Obtained:

S. No.	Name of the Faculty	Branch	Quiz-1 Marks/10	Quiz-2 Marks/10	Quiz-3 Marks/10	Quiz-4 Marks/10	Attendance Marks/10	Final Assessment Marks/50	Total Marks (Out of 100)	Grade Obtained
1	Dr. Chayan Gupta	Civil Engg.	10	10	9	9	10	43	91	A+
2	Dr. Abhilash Shukla	Civil Engg.	10	3	10	8	8	50	89	A
3	Prof. Vaibhav Shivhare	Mechanical/Auto mobile Engg.	8	3	7	9	10	47	84	A
4	Dr. Ashish Agrawal	Mechanical/Auto mobile Engg.	8	10	9	10	10	47	94	A+
5	Dr. Nitin Upadhayay	Mechanical/Auto mobile Engg.	7	8	8	9	10	33	75	B+
6	Prof. Ajay Singh Raiput	Mechanical/Auto mobile Engg.	10	8	7	7	7	37	76	B+
7	Prof. Nipun Gupta	Electrical Engg	8	10	10	9	9	47	93	A+
8	Prof. Saurabh Kumar Rajput	Electrical Engg	8	8	10	9	8	40	83	A
9	Prof. Nikhil Paliwal	Electrical Engg	7	8	9	9	10	47	90	A+
10	Dr. Vikram	Electrical Engg	9	8	9	8	10	47	91	A+
11	Prof. Kuldeep K. Swarnkar	Electrical Engg	7	10	9	9	10	40	85	A
12	Dr. Rahul Dubey	Electronics Engg.	8	8	9	8	10	47	90	A+
13	Dr. Varun Sharma	Electronics Engg.	10	10	9	9	10	47	95	A+
14	Dr. Shubhi Kansal	Electronics Engg.	10	8	10	9	10	43	90	A+
15	Dr. Sushmita Choudhary	Electronics Engg.	8	5	9	8	3	47	80	A
16	Dr. Atul Kumar Ray	Mathematics and Computing	7	8	9	9	10	47	90	A+
17	Dr. Minakshi	Mathematics and Computing	8	8	9	9	10	50	94	A+
18	Prof. Anish P. Jacob	Chemical Engg.	10	8	9	10	10	43	90	A+
19	Dr. Shourabh Singh Raghuwanshi	Chemical Engg.	8	8	9	8	10	43	86	A
20	Mr. Mahesh Parmar	Computer Science and Engg.	10	7	10	9	10	43	89	A

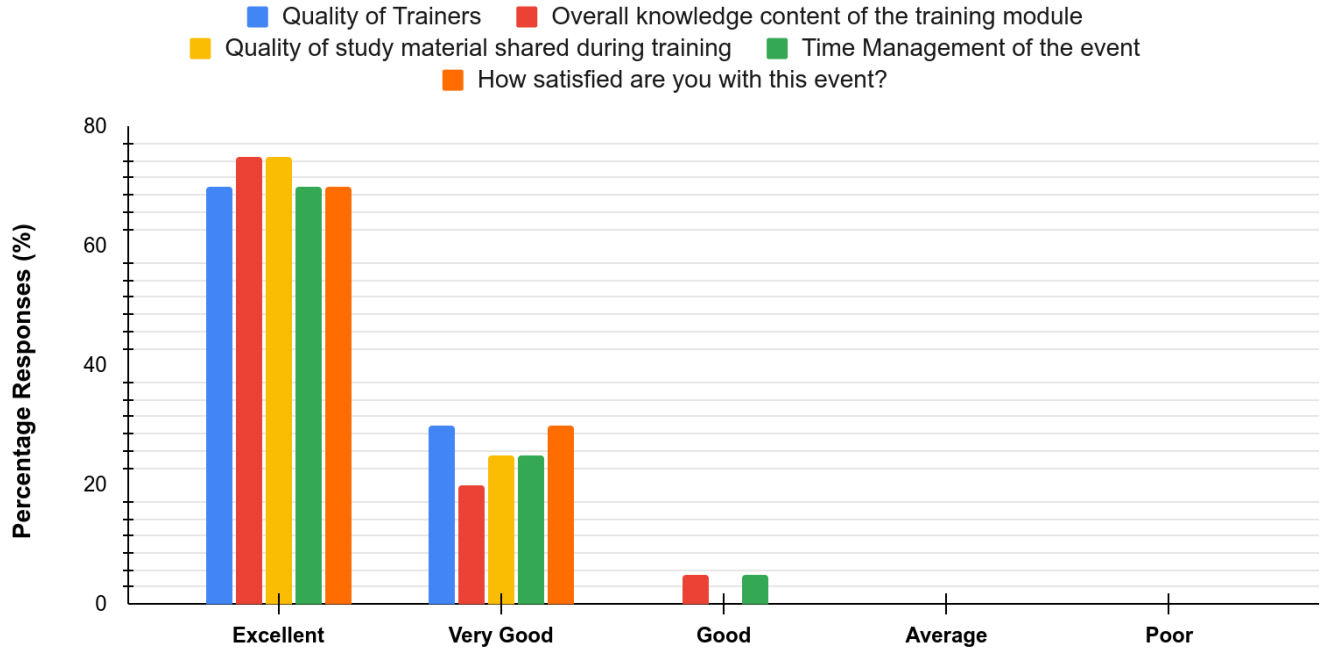


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### Event Feedback Analysis:



Additional comments/suggestions by the participants:

- Very interactive sessions.
- Overall nicely covered all topics. Thanks for the wonderful training program.
- All sessions were very informative. Thanks to all trainers.
- Thanks to all for sharing the Data Science knowledge.
- Nicely Done in the time stipulated.
- Very informative Sessions
- very good explained by all faculty
- Nice experience but I requested to you please arrange some more classes for better understanding.
- Trainers has given good training only due to less time it becomes little bit tedious. Trainers are very helpful and all doubts of the same session were solved instantly. Overall i am very happy with the training provided and hope to learn from them in future because this area gives me an immense opportunity to explore.
- "The training was wonderful. We learnt a lot and will try to implement the gained knowledge with students.
- Thanx Meer sir, Dhananjay sir , Bhagat sir and whole organizing team"
- nice session but more sessions are required for better understanding
- Fully satisfied.