

Indira College of Engg. & Management (22-23)


HDFC Bank Payment Voucher

No. : 819

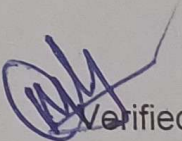
Dated : 1-Mar-2023

Particulars	Amount
<b>Account :</b> Faculty Development Programme Exp.	<b>1,950.00</b>
<b>Through :</b> HDFC Bank Ltd A/c No : 50200024798810	
<b>On Account of :</b> Being amount paid to Shwetkranti Taware for Three days Workshop on Machine Learning as details attached	
<b>Bank Transaction Details:</b> Cheque                      303018557430    1-Mar-2023              1,950.00	
<b>Amount (in words) :</b> Indian Rupees One Thousand Nine Hundred Fifty Only	
	<b>₹ 1,950.00</b>

Receiver's Signature:

  
Checked by

Authorised Signatory

  
Verified by

**PRE Budget-Approval**Date - 11/2/2023Title of the Activity: - Three days workshop on Machine Learning and applications using python.Level: - College level / Dept. level  Department / Section Computer Engg.Name of coordinator: - Ms. Shwetkanti Taware Staff ID :- 2197 Mob. No 9763858530Resource person & Affiliation (if any): - Bhaskaracharya Pratishthana, PuneActivity Scheduled date: - 8th Feb to 10th Feb, 2023 Time :- 9.00 am to 5.00 pm.**Note:** \*If HOD / Dean/ Coordinator has intimated this head under academic budget (at the start of AY) then only this will be considered approval.

\*Following is the budgetary requirement for the scheduled event, kindly sanction/approve

Sr. No.	Details/Particulars	Estimated amount
1.	Three day workshop	2000/-
2.	on ML & appl <sup>n</sup> usin	
3.	python.	
4.		
5.		
	<b>Total</b>	<b>2000/-</b>

Event Coordinator Name & sign (Ms. Shwetkanti Taware) HOD/Dean/Coordinator (If Dept. level program) Rs. 1950/- (A36) Dean

(Note:- Take sign of the Dean related to the Activity)

Principal/Director Remark:

A/c of pay Rs 1950/-

Submitted to account for payment/advance after approval of Principal/Director, ICEM

Account Remarks: \_\_\_\_\_

Date: 21.2.23

Accounts Sign: \_\_\_\_\_

Principal/Director, ICEM



BHASKARACHARYA PRATISHTHANA, PUNE



*Centre for Industrial Mathematics*

*Workshop on Machine Learning and Applications Using Python*

*Certificate*

This is to certify that Mr./Ms./Dr./Prof. SHWETKRANTI NANASAHEB TAWARE

from INDIRA COLLEGE OF ENGG AND MANAGEMENT

successfully participated in *Workshop on Machine Learning and Applications Using Python* organised by Bhaskaracharya Pratishthana, Pune, during 8<sup>th</sup> - 10<sup>th</sup> February, 2023.

Dr. Ajay V. Deshmukh  
Director,  
Centre for Industrial Mathematics

Prof. S. A. Katre  
Custodian  
Bhaskaracharya Pratishthana





# Bhaskaracharya Pratishthana

Off Law College Road, Pune 411004,  
Maharashtra, India, [www.bprim.org](http://www.bprim.org)

Centre for Industrial Mathematics, Bhaskaracharya Pratishthana, Pune announces a course on **“Machine Learning (ML) and Applications Using Python”**.

**Duration** -18 Hours (9 AM to 4.30 PM, 6 hours per day)

**Course Dates:** 8, 9 and 10th February 2023, (Wednesday to Friday)

**Venue:** off line, in AV Hall, Bhaskaracharya Pratishthana, Pune

**Background:** Industrial Applications of machine learning are very much demanding. This also requires a sound understanding of the mathematics, specifically Linear Algebra, Statistics and Python Programming. The course is aimed at becoming ready for industry projects using machine learning.

### Objectives:

- To be ready for industry projects using **Machine Learning**
- Acquire the knowledge of Linear Algebra, Statistics, Python, and Machine Learning

**Expected Outcome:-** Ability to develop use cases using Machine Learning in PYTHON

**Course Contents:** Basics of Linear Algebra, Statistics, Python Programming, Machine Learning and Industry Applications.

### Course Highlights:-

- Experienced faculty
- Hands on Exercises
- Examples with Industrial Applications
- Focus on Projects

**Eligibility:** Any Graduates or Students of Science/Engineering/Mathematics and working professionals from industries.

**(Certificates shall be provided after successful completion of the course)**

**Registration Fees:** INR 1950/- per participant. This includes breakfast, lunch and tea. (Based on availability, shared accommodation shall be provided in the guest house for outstation participants at INR 750/- for three days)

**How to Register?** For registration and on line payment of fees visit our website [www.bprim.org](http://www.bprim.org) and go to the admission portal,

### Faculty:

- Prof. S. A. Katre, Lokmanya Tilak Chair Professor of Mathematics Savitribai Phule Pune University (SPPU), Pune
- Dr. Ajay V. Deshmukh, Director, Centre for Industrial Mathematics, Bhaskaracharya Pratishthana, Pune
- Prof. Hrishikesh Khaladkar, Fergusson College Pune
- Prof. Pavan Dodya, Department of Mathematics, SPPU Pune
- Dr. Aman Jhinga, Post doctoral Researcher, Bhaskaracharya Pratishthana
- Vaishali A. Kolhatkar, Bhaskaracharya Pratishthana
- Kailas Chavan, Asst. Professor, Bhaskaracharya Pratishthana

**Co-ordinator:-** Ms. Ketaki Phadke, Bhaskaracharya Pratishthana, Cell 8796 05 0900

**Convener:** Dr. Ajay V. Deshmukh

**Contact:-** [cimdirector@bprim.org](mailto:cimdirector@bprim.org), cell 7447 47 465



# “ Mathematics for Artificial Intelligence and Machine Learning”

Schedule: 8,9,10 Feb 2023 from 9.00 AM to 4.30 PM (off line in AV Hall BP)

Session No.	Topic/Activity	Speaker	Remarks
	<b>Day-1- 8th Feb 2023 (Wednesday)</b>		
	Inaugural		30 min
	Overview of the Course	Dr. Ajay V. Deshmukh	10 min
1	Key Note- Importance of Mathematics	Prof. S. A. Katre	45 min
	TEA BREAK		
2	Vector Spaces and norms	Mrs. Vaishali A. Kolhatkar	60 min
3	System of Differential Equations	Prof. S. A. Katre	60 min
	LUNCH BREAK		
4	Matrix Algebra	Mrs. Vaishali A. Kolhatkar	60 min
	TEA BREAK		
5	Matrix Algebra	Dr. Aman Jhinga	60 min
6	Eigen Values and Eigen Vectors	Dr. Aman Jhinga	60 min
7			
	<b>Day-2 9<sup>th</sup> Feb 2023, (Thursday)</b>		
8	SVD and its application	Dr. Aman Jhinga	60 min
9	Principle Component Analysis (PCA)	Mrs. Vaishali A. Kolhatkar	60 min
	TEA BREAK		
10	Distribution Theory: Probability Density function, Distribution Functions, Moment generating function	Mr. Kailas Chavan	60 min
	LUNCH BREAK		
	Python Programming	Prof. Pavan Dodya	60 min
	Python Programming	Prof. Pavan Dodya	60 min
	TEA BREAK		
14	Python Programming	Prof. Pavan Dodya	60 min
	<b>Day 3 10<sup>th</sup> Feb 2023, (Friday)</b>		
15	Types of Distributions: Gaussian, Exponential, Chi Square, Raileigh	Mr. Kailas Chavan	60 min
16	t-test, chi sq. test	Mr. Kailas Chavan	60 min
	TEA BREAK		
17	Machine Learning-I	Prof. Hrishikesh Khaladkar	60 min
18	Machine Learning-II	Prof. Hrishikesh Khaladkar	60 min
	LUNCH BREAK		
19	Machine Learning-III	Prof. Hrishikesh Khaladkar	60 min
	TEA BREAK		
20	Industrial Applicatrions of Machine Learning	Dr. Ajay V. Deshmukh	60 min
	Test, Feedback and Conclusion	Mr. Kailas Chavan	30 Min



Ref. No: ICEM/Comp Engg/2022-23/

Date: 11.02.2023

Dept. of Computer Engineering

**Name of the Event: Three-day Workshop on Machine Learning (ML) and Applications Using Python**

**Date: 8 Feb to 10 Feb 2023**

**Time: 09.00 am to 5.00pm**

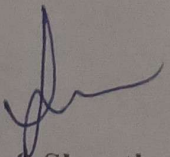
**Venue: AV Hall, Bhaskaracharya Pratishthana, Pune**

**Target Audience: Any Graduates or Students of Science/Engineering/Mathematics and working professionals from industries.**

**Conducted by: Bhaskaracharya Pratishthana Team**

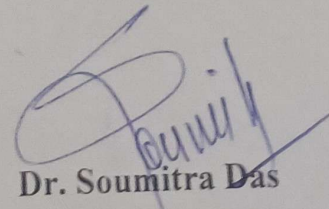
**Report:**

In this session different teacher conducted different session like Linear Algebra Vector Spaces and norms, Matrix Algebra, SVD, Python Programming, Probability Density function, Distribution Functions, Moment generating function, Chi Square, t-test, chi sq. test, machine learning and deep learning. This workshop will surely help the me as it is an Integral part of the research.



**Prof. Shwetkranti Taware**

Assistant Professor



**Dr. Soumitra Das**

HOD



Student's Name: Shwetkranti Taware  
Mobile: 09763858530

Date: 07-02-2023  
Transaction ID: 63e213794a567

Receipt No.	Department	Standard	Amount
165	Centre for Ind Math	Machine Learning and Applications using Python	1950

Amount in words: INR One Thousand Nine Hundred Fifty

Indira College of Engg. & Management (22-23)

HDFC Bank Payment Voucher

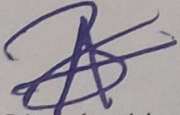
No. : 824

Dated : 3-Mar-2023

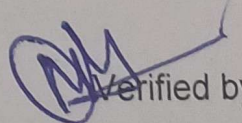
Particulars	Amount
<b>Account :</b> Faculty Development Programme Exp.	1,950.00
<b>Through :</b> HDFC Bank Ltd A/c No : 50200024798810	
<b>On Account of :</b> Being amount paid to Shelly Sinha for Three days Workshop on Machine Learning as details attached	
<b>Bank Transaction Details:</b> Cheque                      303031961835    3-Mar-2023              1,950.00	
<b>Amount (in words) :</b> Indian Rupees One Thousand Nine Hundred Fifty Only	
	₹ 1,950.00

7/8

Receiver's Signature:

  
Checked by

Authorised Signatory

  
Verified by



**PRE Budget-Approval**Date - 11/02/2023Title of the Activity: - 3-day workshop on Machine Learning & Applications using Python.

Level: - College level / Dept. level

Department / Section Computer Engg.Name of coordinator: - Prof. Shelly Sinha Staff ID :- 2205 Mob. No 8919724645Resource person & Affiliation (if any): - Bhaskaracharya PratishthanaActivity Scheduled date: - 8<sup>th</sup> - 10<sup>th</sup> Feb 2023 Time :- 9:00 AM to 4:30 PM**Note:** \*If HOD / Dean/ Coordinator has intimated this head under academic budget (at the start of AY) then only this will be considered approval.

\*Following is the budgetary requirement for the scheduled event, kindly sanction/approve

Sr. No.	Details/Particulars	Estimated amount
1.	3-day workshop on	1950/-
2.	Machine Learning &	
3.	App <sup>n</sup> using Python	
4.		
5.		
	<b>Total</b>	<b>1950/-</b>

Shelly  
 Prof. Shelly Sinha  
 Event Coordinator Name & sign

[Signature]  
 HOD/Dean/Coordinator  
 (If Dept. level program)

[Signature]  
 Dean

(Note:- Take sign of the Dean related to the Activity)

Principal/Director Remark:

A/c Pay 1950/-

Submitted to account for payment/advance after approval of Principal/Director, ICEM

Account Remarks: \_\_\_\_\_

Date:

[Signature]

Accounts Sign:

Principal/Director, ICEM





D

To Bhaskarcharya Paristhan

₹1,950

Pay again

Split with friends

Completed

Feb 8, 2023 9:38 AM



UCO Bank  
XXXXXXXXXX2035



UPI transaction ID  
303912790929

To  
.... 4305

From: SHELLY SINHA (UCO Bank)  
shellysinha.cse12-1@okicici

Google transaction ID  
CICAgJCNkpmFlg



BHASKARACHARYA PRATISHTHANA, PUNE



*Centre for Industrial Mathematics*

***Workshop on Machine Learning and Applications Using Python***  
***Certificate***

This is to certify that Mr./Ms./Dr./Prof. SHELLY SINHA

from Indira College of Engineering and Management, Pune

successfully participated in *Workshop on Machine Learning and Applications Using Python* organised by Bhaskaracharya Pratishthana, Pune, during 8<sup>th</sup> - 10<sup>th</sup> February, 2023.

Dr. Ajay V. Deshmukh  
Director,  
Centre for Industrial Mathematics

Prof. S. A. Katre  
Custodian  
Bhaskaracharya Pratishthana





Ref. No: ICEM/Comp Engg/2022-23/

Date: 11.02.2023

## Dept. of Computer Engineering

**Name of the Event:** 3-day Workshop on Machine Learning (ML) and Applications Using Python

**Date:** 8 Feb to 10 Feb 2023

**Time:** 09.00 am to 5.00pm

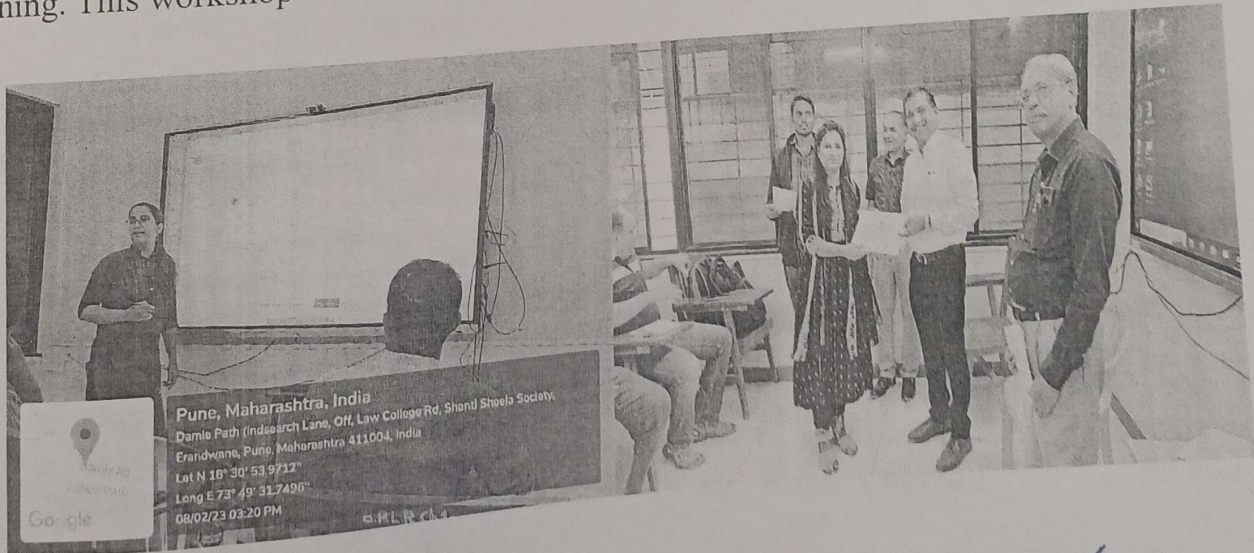
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**Conducted by:** Bhaskaracharya Pratishthana Team

### Report:

In this session different teacher conducted different session like Linear Algebra Vector Spaces and norms, Matrix Algebra, SVD, Python Programming, Probability Density function, Distribution Functions, Moment generating function, Chi Square, t-test, chi sq. test, machine learning and deep learning. This workshop will surely help the me as it is an Integral part of the research.



Prof. Shelly Sinha

Assistant Professor

Dr. Soumitra Das

HOD



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	TEA BREAK		
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	Test, Feedback and Conclusion	Mr. Kailas Chavan	30 Min



Pre-Approval (College / Dept level Program)

Date - 06/02/2023

Title of the Activity: - 3-day workshop on Machine Learning & Applications Using Python

Level: - College level / Dept. level Department / Section Computer Engg.

Name of coordinator: - Prof. Shelly Sinha Staff ID :- 2205 Mob. No 8919724645

Resource person & Affiliation (if any): - Bhaskaracharya Pratishthana

Activity Scheduled date: - 8th - 10th Feb 2023 Time:- 9:00 AM to 4:30 PM

Participants: - Faculty / Staff / Students / All

Participants Class \_\_\_\_\_ Expected strength of Audience \_\_\_\_\_

Note:

- 1. For budgetary requirement (if any) format No.003
- 2. This is only activity approval; this don't indicate expenses approval.

*[Handwritten signature]*

Prof. Shelly Sinha  
Coordinator Name & sign

*[Handwritten signature]*  
6/2/23

HOD  
(If Dept level program)

*[Handwritten signature]*  
Dean

(Note: - Take sign of the Dean related to the Activity)

Remarks: -

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ref No :-

Principal *[Handwritten signature]*  
ICEM





# Bhaskaracharya Pratishthana

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**Course Contents:** Basics of Linear Algebra, Statistics, Python Programming, Machine Learning and Industry Applications.

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### Faculty:

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- Dr. Ajay V. Deshmukh, Director, Centre for Industrial Mathematics, Bhaskaracharya Pratishthana, Pune
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- Vaishali A. Kolhatkar, Bhaskaracharya Pratishthana
- Kailas Chavan, Asst. Professor, Bhaskaracharya Pratishthana

**Co-ordinator:-** Ms. Ketaki Phadke, Bhaskaracharya Pratishthana, Cell 8796 05 0900

**Convener:** Dr. Ajay V. Deshmukh

**Contact:-** [cimdirector@bprim.org](mailto:cimdirector@bprim.org), cell 7447 47 465



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19