

Rayat Shikshan Sanstha's
KARMAVEER BHAURAO PATIL COLLEGE VASHI
[Autonomous College]
DEPARTMENT OF MATHEMATICS
REPORT

TWO DAY TEACHER'S TRAINING WORKSHOP
On
Application of Linear Algebra Using SAGE

BROCHURE

Our Inspiration

Hon. Sharadchandra Pawar
President,
Rayat Shikshan Sanstha, Satara

Hon. Dr. Anil Patil
Chairman,
Rayat Shikshan Sanstha, Satara

Hon. Dr. N. D. Patil
Chairman,
CDC, KBP College, Vashi

Our Chief Patrons

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Secretary,
Rayat Shikshan Sanstha, Satara

Hon. Dr. Vijaysinh Sawant
Joint Secretary,
Rayat Shikshan Sanstha, Satara

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Mr. Dattatray Bhosale
Coordinator & HOD

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Convener

Members

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Ms. Shubhangi Phadtare

Ms. Tanushree Patil

Ms. Shaila Bhalerao

Ms. Sonali Bhilare

RAYAT SHIKSHAN SANSTHA'S
KARMAVEER BHAURAO PATIL COLLEGE
Juhunagar, Sector 15 - A, Vashi,
Navi Mumbai - 400 703
Phone No.: 022-27661210



"Education through self help is our motto"

RAYAT SHIKSHAN SANSTHA'S
KARMAVEER BHAURAO PATIL COLLEGE, VASHI
(Autonomous)

Reaccredited by NAAC at 'A+' Grade
ISO 9001:2015 certified institute

DEPARTMENT OF MATHEMATICS
Organizes

TEACHER'S TRAINING WORKSHOP
on
Application of Linear Algebra Using



Under the aegis of

RUSA

31st January - 1st February 2020

ABOUT RAYAT SHIKSHAN SANSTHA

The Rayat Shikshan Sanstha is one of the leading educational institutions in India. It was established in 1919 by Padmabhushan Dr. Karmaveer Bhaurao Patil with emphasis on the education of the down-trodden, poor and ignorant which forms the major bulk of society. He was a great humanitarian who endeavored hard to educate the masses and to bring a life of hope in their lives of misery and ignorance. He was honored with "Padmabhushan" by Government of India for his enormous educational work. Currently, its branches spread over 14 districts of Maharashtra and one in Karnataka. Under its flagship the Sanstha administers 41 Colleges, 438 Secondary schools, 159 junior colleges, 28 primary schools, 8 Training Colleges, 68 hostels, 8 Ashram Schools, 2 ITI's and 57 Ancillary branches. Around 4.4 lakhs of students are created with their educational needs.

ABOUT COLLEGE

KBP College is one of the most flourishing branches of the Rayat Shikshan Sanstha, Satara and well reputed in the Jurisdiction of Maharashtra Board, Mumbai Division and University of Mumbai. Since, its inception in 1979, the college has been galloping towards Academics, Quality Education and Infrastructure accomplishment.

- Autonomous since AY2018-19
- Reaccredited 'A+' grade by NAAC with CGPA 3.53
- ISO 9001 : 2015 certified
- Star College Status from DBT, Gol

ABOUT DEPARTMENT of Mathematics

The very idea of starting Mathematics subject in 1979 was to create confidence by equipping all the students with knowledge of Mathematics. It is related to various branches of science, Technology, Agriculture, Industry, Engineering, Information Technology, Computer Science etc. We are proud to be the only college in the Navi Mumbai who offer T.Y.B.Sc. Mathematics course from the academic year 2005 - 2006 and M.Sc. Mathematics course from academic year 2012 - 2013. Providing Skill Based Training programs on 'Data Science' and 'Advanced Excel' to enhance employability of students.

ABOUT SAGE

SAGE, 'System for Algebra and Geometry Experimentation' is a computer algebra system with features covering many aspects of mathematics, including algebra, graph theory, combinatorics, numerical analysis, number theory, calculus and statistics. In order to use mathematical software for exploration, we often push the boundaries of available computing resources and continuously try to improve our implementations and algorithms. Most mathematical algorithms require basic building blocks, such as multi precision numbers, fast polynomial arithmetic, exact or numeric linear algebra, or more advanced algorithms. Though implementing some of these basic foundations from scratch can be a good exercise, the resulting code may be slow and buggy. Instead, one can build on existing optimized implementations of these basic components that provide the desired functionality. These two approaches have significant drawbacks. Sage provides an alternative approach to this problem.

RESOURCE PERSON

Dr. Ajit Kumar
Associate Professor & Head, Department of Mathematics,
Institute of Chemical Technology, Mumbai

Prof. Krishnan Sivasubramanian
Department of Mathematics,
IIT Bombay

PROGRAM SCHEDULE

31st January 2020

09.00am - 10.00am: Registration & Breakfast
10.00am - 10.30am: Inaugural function
10.30am - 12.30pm: First Session
12.30pm - 01.30pm: Second Session
01.30pm - 02.30pm: Lunch Break
02.30pm - 04.30pm: Third Session

1st February 2020

10.00am - 12.30pm: First Session
12.30pm - 01.30pm: Second Session
01.30pm - 02.30pm: Lunch Break
02.30pm - 04.00pm: Third Session
04.00pm - 04.15pm: Tea Break
04.15pm - 04.45pm: Valedictory Function

REPORT

The Department of Mathematics organized a two day Teacher's Training Workshop on **Application of linear algebra using 'SAGE'** dated on **31st January & 1st February 2020**.

SAGE, 'System for Algebra and Geometry Experimentation' is a [computer algebra system](#) with features covering many aspects of [mathematics](#), including [algebra](#), graph theory, [Combinatorics](#), [numerical analysis](#), [number theory](#), [calculus](#) and [statistics](#). In order to use mathematical software for exploration, we often push the boundaries of available computing resources and continuously try to improve our implementations and algorithms. Most mathematical algorithms require basic building blocks, such as multiprecision numbers, fast polynomial arithmetic, exact or numeric linear algebra, or more advanced algorithms. Though implementing some of these basic foundations from scratch can be a good exercise, the resulting code may be slow and buggy. Instead, one can build on existing optimized implementations of these basic components that provide the desired functionality. These two approaches both have significant drawbacks. Sage, which provides an alternative approach to this problem.

The programme was inaugurated by our honorable Vice Principal Dr. E. S. Munde. Coordinator & Head of the Department Mr.Dattatray Bhosale, Convener Ms.S.Revathy and other faculty members of the Department and Teaching professionals from various Institutes and Colleges were present for the ceremony.

There were around 40 entries of the Teaching professionals from various Colleges. The inaugural function started with the Welcome speech and introductory speech about Workshop by Convener Ms.S.Revathy & Head of the Department Mr.Dattatray Bhosale, followed by the felicitation of all the dignitaries. The Vote of Thanks for the inaugural ceremony was delivered by Mr.Dattatray Bhosale.

We invited Eminent Resource persons Dr.Ajit Kumar (HOD of Mathematics. Institute of chemical technology) & Prof.Krishnan Sivasubramanian (Dept. of Mathematics IIT Bombay). The programme was divided into six sessions including the practicals. Computer labs were arranged to conduct sessions. Both the Resource persons were highly talented and hardworking.

The programme ended with the Valedictory function in the presence of Coordinator & Head of the Department Mr.Dattatray Bhosale, Convener Ms.S.Revathy, Resource Persons and other faculty members of the Department and Teaching professionals from various Institutes and Colleges.

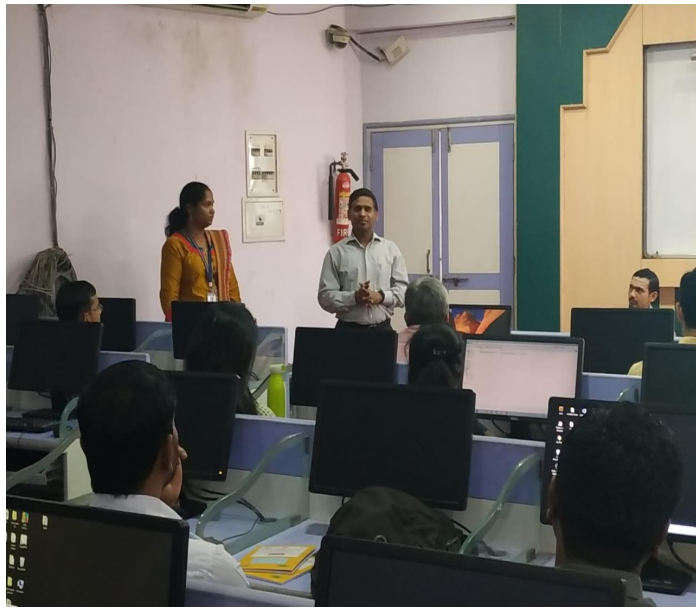
The Programme concluded with the Vote of Thanks of Coordinator Ms.Shubhangi Phadtare.

Mr.Dattatray Bhosale
Head of the Department.

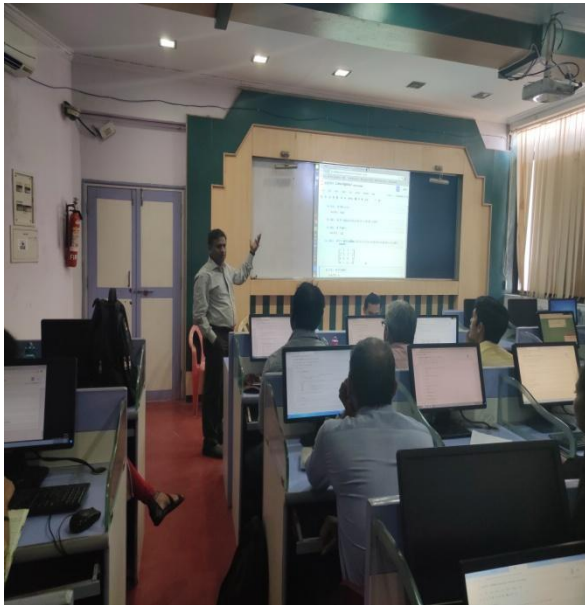
PHOTOS



At Inauguration function



Introduction by Ms.S.Revathy



Practical Session



Teachers Participants