



*A
REPORT
ON*



*National Workshop on
'Python' for Teachers
on*

22nd of June 2019

Under

*'Pandit Madan Mohan Malaviya National
Mission on Teachers and Teaching
(PMMMNMTT)',*

MHRD, Govt. of India

Conducted by

The Teaching Learning Centre (ICT),

Supported by FOSSEE & Spoken Tutorials

Jointly Organized by

IIT Bombay

&

*Swami Keshvanand Institute of Technology,
Management & Gramothan, Jaipur, Rajasthan*

Submitted by: Kailash Soni

Workshop Coordinator

Assistant Professor, Department of CSE

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1. About SKIT:-

Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT) inspired from the learnings of Swami Keshvanand, was established in the year 2000 by Technocrats and Managers Society for Advanced Learning. Today the Institute is recognized as one of the centers of academic excellence in Northern India. The Institute is affiliated to Rajasthan Technical University, Kota for offering Postgraduate and Graduate Courses in Engineering and Management. Our sister institution Swami Keshvanand Institute of Pharmacy (SKIP) is affiliated to Rajasthan University of Health Sciences for offering Graduate Course in Pharmacy.

Located in the Pink City Jaipur, which is a blend of traditional history and modern outlook, SKIT is putting in efforts for making industry ready engineers and managers through effective Industry –Institute Interface. Apart from University curriculum SKIT also pursues activities for research and development in various fields.

The green landscaping, aesthetic elegance of arches and the vibrant pursuit of knowledge by the young aspirants make the environment serene, pleasant and dynamic.

Students joining the institute share the box full of opportunities for professional and personal development through an environment of practical orientation, industrial interaction and student led activities which help the students to develop good communication skills, integrated personality and greater competitive spirit.

Our Inspiration

"Mass illiteracy is the root cause behind backwardness of India. If we want speedy progress of nation we need to root it out as early as possible."

– Swami Keshvanand

Swami Keshvanand, an orphan, illiterate, nomadic man who never received formal education, was the founder of more than 300 schools, 50 hostels and innumerable libraries, social service centers and museums. Swami Keshvanand had a deep understanding of the rural society of the desert region. He had explained the peculiarities of the desert region, identified the problems and suggested appropriate and logical solutions. It was Swami Keshvanand's lifelong endeavour to eradicate social evils like untouchability, illiteracy, child marriage, indebtedness, poverty, backwardness, alcohol abuse, moral dissipation etc.

Vision

To promote higher learning in advanced technology and industrial research to make our country a global player

Mission

To promote quality education, training and research in the field of Engineering by establishing effective interface with industry and to encourage faculty to undertake industry sponsored projects for students.

Quality Policy

We are committed to ‘achievement of quality’ as an integral part of our institutional policy by continuous self-evaluation and striving to improve ourselves.

Institute would pursue quality in

- All its endeavours like admissions, teaching- learning processes, examinations, extra and co-curricular activities, industry institution interaction, research & development, continuing education, and consultancy.
- Functional areas like teaching departments, Training & Placement Cell, library, administrative office, accounts office, hostels, canteen, security services, transport, maintenance section and all other services.”

2. Introduction to workshop:-

IIT Bombay has conducted many large-scale teacher training workshops under the Train 10,000 Teachers (T10KT) programme, sponsored by the National Mission on Education through ICT (NMEICT), MHRD, Govt. of India, and trained over 2,00,000 teachers.

Another successful technology developed at IIT Bombay is Spoken Tutorial, using which about 50 lakh students have been trained on various ICT topics. The Spoken Tutorial project is also implemented successfully at IIT Bombay, with funding from NMEICT, MHRD.

It is now proposed to offer the highly effective Spoken Tutorial based ICT training to a large number of teachers, across the country, through the T10KT methodology, with **Python** training being taken up next.

Python is a very versatile and easy-to-learn programming language with an extensive library of open tools allowing users to solve a variety of problems. Python has a rich ecosystem of libraries and tools for scientific computing and data science. There are libraries that provide a powerful interactive computing environment both on the console as well as on a web-browser. Python can interface relatively easily with other well-established languages like FORTRAN/C and C++. In addition to this Python also has libraries to build user interfaces, build web applications, interface to hardware, and a whole host of other domains. This makes Python an excellent language to learn opening up a world of possibilities to users who desire to use their computers more effectively.

The FOSSEE (Free/Libre and Open Source Software for Education) project at IIT Bombay (<https://fossee.in>) has been promoting Python, and other FLOSS software, such as Python, OpenFOAM, eSim, Osdag, OpenModelica, DWSIM & R, and Open Source hardware, such as Arduino and OpenPLC. FOSSEE is also funded by NMEICT, MHRD. Government of India has mandated the use of open source software.

The Python workshop is organised by the Teaching Learning Centre (TLC) at IIT Bombay, funded by the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), MHRD, Govt. of India. As Spoken Tutorial method offers hands on practice, with 100% active learning, those who undergo this training will be able to start using Python immediately after the workshop. They will also be able to conduct Python workshops for their students, using Spoken Tutorials, on their own, without requiring any help from anyone else.

The one day Python workshop was conducted on Saturday, 22 June 2019, through various Remote Centres of IIT Bombay. The medium of instruction for this workshop is English. Language dubbed Spoken Tutorials in Hindi and a few other languages will also be available.

3. Methodology of the Workshop:-

It was a one day workshop, on 22 June 2019. Many participants attended it at their selected Remote Centre.

They were learning Python through Spoken Tutorials, with help from Coordinators, already trained for this purpose at IIT Bombay. As the learning will happen only through carefully designed Spoken Tutorials designed and developed at IIT Bombay, the quality of learning will be very high.

All the participants, from all the Remote Centres, will be able to interact with the Python team at IIT Bombay, ask them questions, etc., through the video conferencing software A-VIEW. There was about 4 hours available for Python training and 2 hours for interactions.

4. Course content:-

The workshop will have two parts:

- (1) About 3.5 hours used in Learning Python from Spoken Tutorials.
- (2) About 30 minutes used to learn about the excellent Python content, developed by FOSSEE.

(a) Learning Python from Spoken Tutorials

Depending on the level of the user, one can learn any/all of the topics mentioned below. If one cannot complete all the topics, one can complete them later on, through self-learning, as all required Spoken Tutorials are freely available.

Getting started:

Getting started with IPython, Using plot commands interactively, Embellishing a plot, Saving plots, Multiple plots, Subplots, Additional features of IPython, Loading data from files, Plotting data, Other types of plots, Plotting charts,

Basic Level:

Getting started with lists, Getting started with for, Getting started with strings, Getting started with files, Parsing data, Statistics, Getting started with arrays, Accessing parts of arrays, Image manipulation using arrays, Basic matrix operations, Advanced matrix operations, Least square fit, Basic datatypes and operators, Sequence datatypes, Input-Output, Conditional statements, Loops, Manipulating lists, Manipulating strings, Getting started with tuples, Dictionaries, Sets, Getting started with functions.

Intermediate Level:

Advanced Features of Functions, Using Python Modules, Writing Python Scripts, Testing and Debugging, Error and Exception Handling.

(b) Useful Python content developed by FOSSEE

A significant issue with the acceptance of open source software on a large scale by academia is due to the lack of documentation. We had proposed and implemented a novel/unique approach to solve this problem through the Textbook Companion (TBC). The Python TBC is a repository of

solved examples from standard Engineering and Science textbooks coded using Python. More than 500 standard engineering textbooks now have TBCs available. The solved examples are available in the form of Jupyter notebooks. There are over 4000 such notebooks available. These notebooks can be explored online or downloaded for free. Students and faculty from various parts of the country have created this collection.

One may use the Python TBC (1) to understand the steps of examples (2) to do what if studies by changing parameters. Python TBC are available at <https://tbc-python.fossee.in/completed-books/> absolutely free of cost. Python TBC is also hosted on the cloud.

5. Speaker of Workshop:-

- **Prof. Prabhu Ramchandran**, Co-Principal Investigator, FOSSEE project
- **Python Team members**, FOSSEE, IIT Bombay

6. Eligibility for Workshop:-

As this workshop is not subject-specific, teaching faculty from all domains (engineering, sciences), and polytechnic colleges, and PGT of schools, can attend. Teachers registered in a Masters or a PhD programme, during their employment as a teacher, can also participate.

7. Duration and Venue:-

The workshop was conducted on **Saturday, 22 June 2019 from 9.30 AM to 6.00 PM** at C1-18 Lab, CS Bock, SKIT (Remote Centre of IIT Bombay). This workshop will be conducted through a blended mode, using both live video conferencing facility (A-VIEW) and hands-on sessions using Spoken Tutorials.

8. Criteria for Certification:-

E-certificate will be provided to the participants after successful completion of the workshop and filling up the feedback form

9. Course Fee:-

For SKIT staff **Rs. 100** (course fee to IIT Bombay) + **Rs. 50** (On 4 may to Remote Center)*, For other **Rs. 100** (course fee to IIT Bombay) + **Rs. 400** (On 4 may to Remote Center)*. Please note that the registration fee once paid is neither refundable nor adjustable under any circumstances. (* To defray the cost of organising the workshop, lunch, and coffee/tea)

10. How to Apply:-

Enrollment was strictly online, and no other mode of application was entertained. **The last date of registration was 20 June 2019, 12.30 pm.** The URL for registration

was: <http://www.it.iitb.ac.in/nmeict/workshopContent.html?workshopid=cvCcqusnXUHEd8JY5ih0Rg>

For new user on this website then please complete the [Sign up](#)

Register on the Spoken Tutorial Website:

1. Before the workshop, participants should register on <https://spoken-tutorial.org/>
2. Fill up the registration form and submit.
3. An email will be received.
4. The account should be activated by clicking the link in the email.
5. The Username and Password should be noted. This is an extremely important step.
6. One needs the above information to post questions on the forum, which will be explained at the time of the workshop.

11. Basic Information:-

- Neither IIT Bombay nor the Remote Centre will bear the travel expense of the participating representatives. There shall also be no accommodation provided to the participants.
- All participants are required to bring **ear phones**, as they will have to listen to video tutorials. Without ear phones, the workshop will not at all be effective.
- Computers to practise Spoken Tutorials and to do Python programming will be available at the Remote Centres. But if they wish, participants can bring their own laptops with Python installed.

12. Address for Communication:-

At IIT Bombay:-

Dr. Kalpana Kannan

Project Coordinator, ESOS Project

Department of CSE, Kanwal Rekhi Building,

Indian Institute of Technology Bombay,

Mumbai - 400 076.

Tel.: +91-22-2576 4989 and Fax: +91-22-2572 0022

Email: eoutreach@it.iitb.ac.in and Website - www.it.iitb.ac.in/nmeict

At SKIT Jaipur:-

Mr. Kailash Soni

Workshop Coordinator,

Assistant Professor Dept. of CSE (SKIT)

Mob. 9460066186 and 0141-5160400

Email: kailash100ni.er@gmail.com and Website - www.skit.ac.in

13. Brochure by IIT Bombay:-

1. Introduction

IIT Bombay has conducted many large-scale teacher training workshops under the Train 10,000 Teachers (T10KT) programme, sponsored by the National Mission on Education through ICT (NMEICT), MHRD, Govt. of India, and trained over 2,00,000 teachers.

Another successful technology developed at IIT Bombay is Spoken Tutorial, using which about 50 lakh students have been trained on various ICT topics. The effectiveness of this method can be seen from the testimonials available here: <https://spoken-tutorial.org/testimonials/media/?foss-70> and this [TEDx talk](#). The Spoken Tutorial project is also implemented successfully at IIT Bombay, with funding from NMEICT, MHRD.

It is now proposed to offer the highly effective Spoken Tutorial based ICT training to a large number of teachers, across the country, through the T10KT methodology, with Python training being taken up next.

Python is a very versatile and easy-to-learn programming language with an extensive library of open tools allowing users to solve a variety of problems. Python has a rich ecosystem of libraries and tools for scientific computing and data science. There are libraries that provide a powerful interactive computing environment both on the console as well as on a web-browser. Python can interface relatively easily with other well-established languages like FORTRAN/C and C++. In addition to this Python also has libraries to build user interfaces, build web applications, interface to hardware, and a whole host of other domains. This makes Python an excellent language to learn opening up a world of possibilities to users who desire to use their computers more effectively.

The FOSSEE (Free/Libre and Open Source Software for Education) project at IIT Bombay (<https://fossee.in>) has been promoting Python, and other FLOSS software, such as Scilab, OpenFOAM, eSim, Osdag, OpenModelica, DWSIM & R, and Open Source hardware, such as Arduino and OpenPLC. FOSSEE is also funded by NMEICT, MHRD. Government of India has mandated the use of open source software.

The Python workshop is organised by the Teaching Learning Centre (TLC) at IIT Bombay, funded by the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT), MHRD, Govt. of India. As Spoken Tutorial method offers hands on practice, with 100% active learning,

those who undergo this training will be able to start using Python immediately after the workshop. They will also be able to conduct Python workshops for their students, using Spoken Tutorials, on their own, without requiring any help from anyone else.

The one day Python workshop will be conducted on **Saturday, 22 June 2019**, through select [Remote Centres](#) of IIT Bombay. This will be a blended training programme that uses A-VIEW for live interactions and Spoken Tutorials to learn to use Python. The medium of instruction for this workshop is English. Language dubbed Spoken Tutorials in Hindi and a few other languages will also be available.

2. Methodology of the Large-scale Workshop

It will be a **one day workshop, on 22 June 2019**. All participants will have to go to their chosen Remote Centre. They will learn Python through Spoken Tutorials, with help from Coordinators, already trained for this purpose by IIT Bombay. As the learning will happen only through carefully designed Spoken Tutorials, designed and developed at IIT Bombay, the quality of learning will be very high. All the participants, from all the Remote Centres, will be able to interact with the Python team at IIT Bombay, ask them questions, etc., through the video conferencing software A-VIEW and a timed discussion forum. There will be about 4 hours available for Python training and 2 hours for interactions.

3. Outline of the workshop

The workshop will have two parts:

- (a) About 3.5 hours will be used in Learning Python from Spoken Tutorials.
- (b) About 30 minutes will be used to learn about the excellent Python content, developed by FOSSEE.

3 (a) Learning Python from Spoken Tutorials

Depending on the level of the user, one can learn any/all of the topics mentioned below. If one cannot complete all the topics, one can complete them later on, through self-learning, as all required Spoken Tutorials are freely available.

Getting started: Getting started with IPython, Using plot commands interactively, Embellishing a plot, Saving plots, Multiple plots, Subplots, Additional features of

IPython, Loading data from files, Plotting data, Other types of plots, Plotting charts.

Basic Level: Getting started with lists, Getting started with for, Getting started with strings, Getting started with files, Parsing data, Statistics, Getting started with arrays, Accessing parts of arrays, Image manipulation using arrays, Basic matrix operations, Advanced matrix operations, Least square fit, Basic datatypes and operators, Sequence datatypes, Input-Output, Conditional statements, Loops, Manipulating lists, Manipulating strings, Getting started with tuples, Dictionaries, Sets, Getting started with functions.

Intermediate Level: Advanced Features of Functions, Using Python Modules, Writing Python Scripts, Testing and Debugging, Error and Exception Handling.

3 (b) Useful Python content developed by FOSSEE

A significant issue with the acceptance of open source software on a large scale by academia is due to the lack of documentation. We had proposed and implemented a novel/unique approach to solve this problem through the Textbook Companion (TBC). The Python TBC is a repository of solved examples from standard Engineering and Science textbooks coded using Python. More than 500 standard engineering textbooks now have TBCs available. The solved examples are available in the form of Jupyter notebooks. There are over 4000 such notebooks available. These notebooks can be explored online or downloaded for free. Students and faculty from various parts of the country have created this collection.

One may use the Python TBC (1) to understand the steps of examples (2) to do what if studies by changing parameters. Python TBC are available at

<https://tbc-python.fossee.in/completed/books/>, absolutely free of cost. Python TBC is also hosted on the cloud.

Yaksh is also developed by FOSSEE, it is a free and open-source online evaluation software. It allows teachers to create full blown courses with video and/or markdown text-based lessons but with *Problem-based learning* at its core. Yaksh focuses on letting teachers create real-time evaluated practice exercises and quizzes. With a large array of question types like Multiple choice question, Fill-in-the-blanks, Arrange options in correct order, Assignment uploads and programming questions available. Yaksh supports Python, C, C++, Java,

Basin and Scilab programming languages. Yaksh is designed to be easily deployable, and can scale-up to accommodate 500+ users simultaneously. Faculty members can use Yaksh to evaluate their students.

4. Teaching faculty

- Prof. Prabhu Ramchandran, Co-Principal Investigator, FOSSEE project
- Python Team members, FOSSEE, IIT Bombay

5. Course Fee

Every participant has to pay Rs. 100 as the course fee to IIT Bombay at the time of online registration. On the day of the workshop, i.e., on **22 June 2019**, they have to pay Rs. 400 to the Remote Centre that they would be attending, to defray the cost of organising the workshop, lunch, and coffee/tea. Please note that the registration fee once paid is neither refundable nor adjustable under any circumstances.

6. Who should attend?

As this workshop is not subject-specific, teaching faculty from all domains (engineering, sciences), and polytechnic colleges, and PGT of schools, can attend. Teachers registered in a Masters or a PhD programme, during their employment as a teacher, can also participate.

7. Criteria for issuing Certificates

E-certificate will be provided to the participants after successful completion of the workshop and filling up the feedback form.

8. Duration and Venue

The workshop will be conducted on Saturday, **22 June 2019 from 9.30 AM to 6.00 PM** at Remote Centres of IIT Bombay. This workshop will be conducted through a blended mode, using both live video conferencing facility (A-VIEW) and hands-on sessions using Spoken Tutorials. A detailed workshop schedule will be available soon.

9. How to apply?

Enrollment will be strictly online, and no other mode of application will be entertained. **The last date of registration is 20 June 2019, 12.30 pm.** The URL for registration is: <http://www.it.iitb.ac.in/nmeict/announcements.html>

Register on the Spoken Tutorial Website:

1. Before the workshop, participants should register on <https://spoken-tutorial.org/>.
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5. The Username and Password should be noted. This is an extremely important step.
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Note

- Neither IIT Bombay nor the Remote Centre will bear the travel expense of the participating representatives. There shall also be no accommodation provided to the participants.
- All participants are required to bring **ear phones**, as they will have to listen to video tutorials. Without ear phones, the workshop will not at all be effective.
- Computers to practise Spoken Tutorials and to do Python programming will be available at the Remote Centres. But if they wish, participants can bring their own laptops with Python installed.

10. Prerequisite for the Python Workshop

The attending participants must see the [Introduction to Python video](#) before the workshop.

10. Address for communication

Dr. Kalpana Kannan
Project Coordinator, ESOS Project
Department of CSE, Kanwal Rekhi Building,
Indian Institute of Technology Bombay,
Mumbai - 400 076
Tel.: +91-22-2576 4989
Email: gaumtesh@iitb.ac.in

One day Workshop

Under
Pandit Madan Mohan Malaviya
National Mission on Teachers and Teaching
(PMMMNMTT),
MHRD, Govt. of India

on

Python

22 June 2019

Conducted by the
Teaching Learning Centre (ICT),
Supported by FOSSEE & Spoken Tutorials

at IIT Bombay



Course Instructor:

Prof. Prabhu Ramchandran
Co-Principal Investigator, FOSSEE project

Project Coordinator

Prof. Kannan Moudgalya
Department of Chemical Engineering
Indian Institute of Technology Bombay
Powai, Mumbai 400076

14. Brochure by SKIT:-

1. About the Institution:-

Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT) inspired from the learnings of Swami Keshvanand, was established in the year 2000 by Technocrats and Managers Society for Advanced Learning. Today the institute is recognized as one of the center of academic excellence in Northern India. The Institute is affiliated to Rajasthan Technical University, Kota for offering Postgraduate and Graduate Courses in Engineering and Management. Our sister institution Swami Keshvanand Institute of Pharmacy (SKIP) is affiliated to Rajasthan University of Health Sciences for offering Graduate Course in Pharmacy. It is located in the Pink City Jaipur, which is a blend of traditional history and modern outlook. SKIT is putting in efforts for making industry ready engineers and managers through effective Industry – Institute Interface. Apart from University curriculum SKIT also pursues activities for research and development in various fields. The green landscaping, aesthetic elegance of arches and the vibrant pursuit of knowledge by the young aspirants make the environment serene, pleasant and dynamic.

2. Introduction:-

Python is a very versatile and easy-to-learn programming language with an extensive library of open tools allowing users to solve a variety of problems. Python has a rich ecosystem of libraries and tools for scientific computing and data science. There are libraries that provide a powerful interactive computing environment both on the console as well as on a web-browser. Python can interface relatively easily with other well-established languages like FORTRAN/C and C++. In addition to this Python also has libraries to build user interfaces, build web applications, interface to hardware, and a whole host of other domains. This makes Python an excellent language to learn opening up a world of possibilities to users who desire to use their computers more effectively.

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3. Methodology of the Main Workshop:-

It will be a one day workshop, on 22 June 2019. All participants will have to go to their chosen Remote Centre. They will learn Python through Spoken Tutorials, with help from Coordinators, already trained for this purpose by IIT Bombay. As the learning will happen only through carefully designed Spoken Tutorials, designed and developed at IIT Bombay, the quality of learning will be very high. All the participants, from all the Remote Centres, will be able to interact with the Python team at IIT Bombay, ask them questions, etc., through the video conferencing software A-VIEW. There will be about 4 hours available for Python training and 2 hours for interactions.

4. Outline of the workshop:-

The workshop will have two parts:
(a) About 3.5 hours will be used in Learning Python from Spoken Tutorials.
(b) About 30 minutes will be used to learn about the excellent Python content, developed by FOSSEE.

4(a) Learning Python from Spoken Tutorials:-

Depending on the level of the user, one can learn any/all of the topics mentioned below. If one cannot complete all the topics, one can complete them later on, through self-learning, as all required Spoken Tutorials are freely available.

Getting started: Getting started with IPython, Using plot commands interactively, Embellishing a plot, Saving plots, Multiple plots, Subplots, Additional features of IPython, Loading data from files, Plotting data, Other types of plots, Plotting charts,

Basic Level: Getting started with lists, Getting started with for, Getting started with strings, Getting started with files, Parsing data, Statistics, Getting started with arrays, Accessing parts of arrays, Image manipulation using arrays, Basic matrix operations, Advanced matrix operations, Least square fit, Basic datatypes and operators, Sequence datatypes, Input-Output, Conditional statements, Loops, Manipulating lists, Manipulating strings, Getting started with tuples, Dictionaries, Sets, Getting started with functions.

Intermediate Level: Advanced Features of Functions, Using Python Modules, Writing Python Scripts, Testing and Debugging, Error and Exception Handling.

4 (b) Useful Python content developed by FOSSEE:-

A significant issue with the acceptance of open source software on a large scale by academia is due to the lack of documentation. We had proposed and implemented a novel/unique approach to solve this problem through the Textbook Companion (TBC). The Python TBC is a repository of solved examples from standard Engineering and Science textbooks coded using Python. More than 500 standard engineering textbooks now have TBCs available. The solved examples are available in the form of Jupyter notebooks. There are over 4000 such notebooks available. These notebooks can be explored online or downloaded for free. Students and faculty from various parts of the country have created this collection. FOSSEE provides a handsome honorarium to anyone who creates TBC.

5. Teaching faculty:-

Prof. Prabhu Ramchandran, Co-Principal Investigator, FOSSEE project.
Python Team members, FOSSEE, IIT Bombay.

6. Course Fee:-

Every participant has to pay **Rs. 100** as the course fee to IIT Bombay at the time of online registration. On the day of the workshop, i.e., on 4 May 2019, they have to pay **Rs. 400** to the Remote Centre that they would be attending, to defray the cost of organizing the workshop, lunch, and coffee/tea. Please note that the registration fee once paid is neither refundable nor adjustable under any circumstances.

7. Who should attend?

As this workshop is not subject-specific, teaching faculty from all domains (engineering, sciences), and polytechnic colleges, and PGT of schools, can attend. Teachers registered in a Masters or a PhD programme, during their employment as a teacher, can also participate

8. Criteria for Certification:-

E-certificate will be provided to the participants after successful completion of the workshop and filling up the feedback form.

9. Duration and Venue:-

The workshop will be conducted at, Swami Keshvanand Institute of Technology, Jaipur 302017 on Saturday, **22 June 2019 from 9.30 AM to 6.00 PM**. This workshop will be conducted through a blended mode, using both live video conferencing facility (A-VIEW) and Hands-on sessions using Spoken Tutorials.

10. How to apply?

Enrollment will be strictly online, and no other mode of application will be entertained. The last date of registration is 20 June 2019, 12.30 pm. The URL for registration is:
<http://www.iitb.ac.in/nmeict/announcements.html>

Registration process for this workshop:-

1. Sign up using your valid email id. Remember your email id and password for future programs.
2. After verification of your sign up, your account will be created on the NMEICT website.
3. Login on the website with the verified account.

4. Go to Announcements, select the course, and register.

5. After successful registration, you will receive an automated email.

Register on Spoken Tutorial Website:-

1. Before the workshop, participants should register on <https://spoken-tutorial.org/>
2. Fill up the registration form and submit.
3. You will get an email.
4. Activate the account by clicking the link in the email.
5. Note down your Username and Password.
6. You will use this to post questions on the forum.

Note:-

1. Neither IIT Bombay nor the Remote Centre will bear the travel expense of the participating representatives. There shall also be no accommodation provided to the participants.
2. All participants are required to bring **ear phones**, as they will have to listen to video tutorials. Without ear phones, the workshop will not at all be effective.
3. Computers to practise Spoken Tutorials and to do Scilab programming will be available at the Remote Centres. But if they wish, participants can bring their own laptops with Scilab installed.

11. Prerequisite for the Python Workshop:-

The attending participants must see the Introduction to Python video (<https://static.fossee.in/python/1-day-workshop/1-Introduction-to-Python.mp4>) before the workshop.

Address for Communication:-

Dr. Mukesh Kumar Gupta
Remote Center Coordinator & Professor, Department of CSE
SKIT, Jaipur, Pin: 302017.
Mobile: 9772545766.
Email: mukeshgupta@skit.ac.in

Mr. Kailash Soni
Programme Coordinator & Asst. Professor, Department of CSE, SKIT, Jaipur, Pin: 302017.
Mobile: 9460066186
Email: kailash100ni.er@gmail.com



Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

One Day Workshop Under

'Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT)'

Funded by the

Ministry of Human Resource Development, Government of India

On

Python

22 June 2019

Conducted by
IIT Bombay

Hosted by
SKIT, Jaipur (RC -1476)



Spoken Tutorials



15. Invitation by IIT:-



Kannan M. Moudgalya, Ph.D
Erach and Maheroo Mehta
Advanced Education Technology
Chair Professor
Department of Chemical Engineering
Indian Institute of Technology Bombay
Powai, Mumbai 400 076, India.



कन्नन मणि मौद्गल्या
डॉय एच एच मेहरू मेहता
एच एच मेहरू मेहता
प्रमुख शिक्षक (उच्च शिक्षण)
रासायनिक अभियंताशास्त्र विभाग
भारतीय प्रौद्योगिकी संस्थान मुंबई
पुणे, मुंबई ४०० ०७६, महाराष्ट्र.



27 May 2019

Dear Sir/Madam,

Greetings from IIT Bombay!

We are glad to announce a **One Day Python workshop for Teachers**. This is being organised by the Teaching Learning Centre (ICT) at IIT Bombay, funded by the *Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT)*, an initiative of the Ministry of Human Resource Development, Government of India. I am writing this mail to invite you to attend this workshop at a Remote Centre convenient to you.

Attending this workshop (on Python) and doing well in it is a pre-requisite to enroll in a workshop on AI/Machine learning that we plan to conduct subsequently.

Details of the current programme are given below:

Workshop Name: One Day Python workshop for Teachers

Who should attend? Teachers and Research Scholars

Date: Saturday, 22 June 2019

Venue: 180+ Remote Centres of ours, a list of which will be available through this link <http://tiny.cc/8j476y>

How the workshop will be conducted:

It will be a one day workshop, on **22 June 2019**. We will interact live through A-VIEW at the beginning. After that, all of you will learn Python using spoken tutorials, guided by the Course Coordinator in the Remote Centre you attend. We will answer your questions, if any, using a Forum, especially designed for distributed learning. In the evening, we shall connect through A-VIEW again, carry out discussions and end the programme. There will be about 4 to 5 hours available for Python training and two hours for interactions, a detailed schedule of which will be made available later.

You will have to pay **Rs. 100** as a course fee to IIT Bombay at the time of registration, and **Rs. 400** to the Remote Centre directly at the time of the

workshop, using which, they will make available lunch and coffee/tea/snacks. Balance amount, if any, will be used by the Remote Centre to pay for the maintenance of their infrastructure.

Procedure to participate in the workshop:

To participate in this workshop, please register at (<https://www.it.iitb.ac.in/nmeict/>) and follow the instructions. The registration portal will open on **28 May 2019** and will close on **20 June, at 12.30 pm**.

Please feel free to bring this information to the attention of your colleagues and friends, anywhere in India, and encourage them to join. Please note that this workshop may be useful to senior teachers of schools as well.

We look forward to your enthusiastic participation in this initiative.

Regards,

Prof. Kannan Moudgalya
PI, TLC (ICT), PMMMNMTT

16. Invitation by SKIT:-



**SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY,
MANAGEMENT & GRAMOTHAN
Ramnagar, Jaipur**



Date: 30.05.2019

INVITATION FOR PYTHON WORKSHOP

We are glad to inform you that Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur and Indian Institute of Technology, Bombay are jointly organizing a One Day Workshop on Python for Teachers under the project 'Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching' (PMMNMTT), funded by the Ministry of Human Resource Development, Government of India.

Python is a very versatile and easy-to-learn programming language with an extensive library of open tools allowing users to solve a variety of problems. Python has a rich ecosystem of libraries and tools for scientific computing and data science. Python can interface relatively easily with other well-established languages like FORTRAN/C and C++. In addition to this Python also has libraries to build user interfaces, build web applications, interface to hardware, and a whole host of other domains. This makes Python an excellent language to learn opening up a world of possibilities to users who desire to use their computers more effectively.

On behalf of the remote centre SKIT College, Jaipur, I request you to circulate and give publicity to the event and encourage your colleagues to participate. Interested candidates may register on or before 20th June, 2019 till 12:30pm through online link given below.

Title: 'One Day Workshop on Python'

Date: 22th of June, 2019

Venue: SKIT College, Jaipur

For registration/fee details: <http://www.it.iitb.ac.in/nmeict/announcements.html>

For queries please contact: Kailash Soni (9460066186) / kailash100ni.er@gmail.com



Spoken Tutorials



RC Coordinator:
Dr. Mukesh Kumar Gupta
Professor, Department of CSE
Ph: 0141-5160400

Workshop Coordinator:
Mr. Kailash Soni
Asst. Professor, Department of CSE
Mob: 9460066186

17. List of Registered Participants:-

Total number of registered participants: - 18

Total number of in-house participants: - 10

Total number of outside participants: - 08

List of in-house participants:-

Sr. No.	Enrll No.	Name	Designation	Status
1	203788	Sunita Gupta	Associate Professor	Request Registered
2	204569	Pankaj Dadheech	Associate Professor	Confirmed
3	204580	Sanju Choudhary	Assistant Lecturer	Confirmed
4	204894	Rishi Vyas	Associate Professor	Confirmed
5	205783	Priyanka	Assistant Professor	Confirmed
6	205790	Aakriti Sharma	Assistant Professor	Confirmed
7	207022	Neha Janu	Associate Professor	Confirmed
8	207495	Priyanka Sharma	Assistant Professor	Confirmed
9	208389	Neeraj Garg	Assistant Professor	Confirmed
10	208567	Poonam Varshney	Senior Lecturer	Confirmed

List of outside participants:-

Sr. No.	Enrll No.	Name	Designation	Institute	Status
1	203744	Swagata Payra	Assistant Professor	Birla Institute of Technology, Jaipur	Confirmed
2	203747	Sunita Verma	Associate Professor	institute of Environmental and Sustainable Studies, BHU	Confirmed
3	204009	Divya Prakash	Associate Professor	Poornima University, Jaipur	Confirmed
4	206407	Meenakshikutty C	Head of Department	St. Soldier Public School	Confirmed
5	206706	Kalpana Gupta	Head of Department	Bharatiya Vidya Bhavan Vidyashram	Confirmed
6	206776	Rajendra Joshi	Head of Department	ST.XAVIER SCHOOL	Confirmed
7	207423	Krishna Singh	School Teacher	St.Anselm's pinkcity school	Confirmed
8	208614	Pawanpreet Singh	School Teacher	JAIPUR SCHOOL	Confirmed

18. Instructions to install Python:-

System requirements for Python Installation:

1. Operating system: Linux- Ubuntu 16.04 to 17.10, or Windows 7 to 10, with 2GB RAM (4GB preferable)
2. You have to install Python 3.6 and related packages, please follow the installation instructions given below as per your operating system.

The procedure to install Python 3 on Ubuntu Linux OS:

Install Python 3.6:

1. To follow the installation procedure, you need to be connected to the Internet.
2. Open the terminal by pressing Ctrl + Alt + T keys together.
3. Install Python 3.6:
 - a. For Ubuntu 16.04 and Ubuntu 17.04:
 - i. In the terminal, run the command `sudo apt-get install python3.6`
 - ii. Press Enter.
 - iii. The terminal will prompt you for your password, type it in to the terminal.
 - iv. Press Enter.
 - b. For Ubuntu 17.10 and above, the system already comes with Python 3.6 installed by default

Check if Python is Installed Correctly:

1. Open the terminal by pressing Ctrl + Alt + T keys together.
2. Run the command `python3 --version` in the terminal and press Enter.
3. You should get an Output Python 3.6 (or an output resembling this)

The procedure to install Python 3 on Windows OS:

Install Python 3.6:

1. To follow the installation procedure, you need to be connected to the Internet.
2. Visit <https://www.python.org/downloads/release/python-368/>
3. At the bottom locate **Windows x86-64 executable installer** for **64 bits** OS and **Windows x86 executable installer** for **32 bits** OS
4. Click on the located installer file to download.
5. After download completes, double click on the installer file to start the installation procedure.
6. Follow the instructions as per the installer

Important Note: After double clicking the installer, check mark the option “Add Python 3.6 to PATH”

Check if Python is Installed Correctly:

1. Open the cmd window ([Click here](#) to see how to open cmd window)
2. Run the command “ `python --version`” or “ `python3 --version`” in the cmd window and press Enter.
3. You should get an Output Python 3.6 (or an output resembling this)

19. Python CD Content:-

Before the workshop IIT Bombay provides a series of Python videos it's called Python CD content. These videos provide the following knowledge of Python:-

Sr. No.	Video about
1	Getting started with IPython
2	Using plot command interactively
3	Embellishing a plot
4	Saving plots
5	Multiple plots
6	Subplots
7	Additional features of IPython
8	Loading Data From Files
9	Plotting Data
10	Other Types Of Plots
11	Plotting Charts
12	Getting started with Lists
13	Getting started with for
14	Getting started with strings
15	Getting started with files
16	Parsing data
17	Statistics
18	Getting started with arrays
19	Accessing parts of arrays
20	Image manipulation using Arrays
21	Basic Matrix Operations
22	Advanced Matrix Operations
23	Least square fit
24	Basic datatypes and operators
25	Sequence datatypes
26	Input-output
27	Conditional Statements

28	Loops
29	Manipulating lists
30	Manipulating strings
31	Getting started with tuples
32	Dictionaries
33	Sets in Python
34	Getting Started with Functions
35	Advanced Features of Functions
36	Using Python Modules
37	Writing Python Scripts
38	Testing and Debugging
39	Handling Errors and Exceptions

20. Workshop Schedule:-

Schedule of Python workshop held on 22 June, 2019.

Timing	Description of the Session	Session type
9.00 AM - 9.30 AM	Connect online on A-VIEW and testing session	Online through A-VIEW
9.30 AM - 10.00 AM	Inaugural Session: Overview of the project and workshop, conduct of the workshop, answering through Forum, efficacy of the method, etc.	
10.00 AM - 10.30 AM	Interaction with Remote Centres	
10.30 AM – 10.45 AM	Tea Break	
10.45 PM - 1.00 PM	Self Learning of Python using Spoken Tutorials	At Remote Centres
1.00 PM - 2.00 PM	Lunch Break	
2.00 PM- 3.45 PM	Python Learning (contd.)	At Remote Centres
3.45 PM- 4.00 PM	Tea Break	
4.00 PM- 5.00 PM	Python Learning (contd.)	At Remote Centres
5.00 PM - 6.00 PM	Interaction with Remote Centres and Valedictory Session	Online through A-VIEW

21. Sessions of Workshop:-

That workshop scheduled in following four sessions:-

Sr. No.	Session No.	Description	Session type
1	Session 1	Inaugural/Interaction	through A-VIEW
2	Session 2	Self Learning of Python using Spoken Tutorials	At Remote Centres
3	Session 3	Self Learning of Python using Spoken Tutorials	At Remote Centres
4	Session 4	Interaction with Remote Centres and Valedictory Session	through A-VIEW

21.1. Session 1:-

The first session was the inaugural session it was addressing by **Prof. Kannan Moudgalya**, Principal Investigator, TLC (ICT), Spoken Tutorial and FOSSEE projects, IIT Bombay. He told the importance of Python workshop and also explains the execution process of this workshop.

He explains the process of answering through Forum. Prof. Kannan also communicates with various remote centre coordinators and also solves their queries related to this workshop. In this session he also introduce all the technical staff who manage this workshop at IIT Bombay centre and also provide various help line numbers to solve real time problem.

21.2. Session 2:-

After the first session we had a 15 minutes tea break.

After this tea break we started session two in which we started our learning process through CD-content at remote centre (SKIT) and we learn the various basic plotting coding methodology by using Python.

21.3. Session 3:-

After the Second session we had a 45 minutes lunch break.

After this lunch break we started session three in which we continued with learning process through CD-content at remote centre and we learn some basic operation, string, array operation and functions, etc by using python.

21.4. Session 4:-

The last session was the Interaction session and Valedictory Session. It was again addressing by **Prof. Kannan Moudgalya**. In this session Prof. kannan was interacted with various remote centre coordinators and find the difficulties which was facing by the participants during the workshop hours and provide the solution.

Prof. Kannan point out the various use of python in the field of Science and technology and also motivate all the participants to use python in their future research work.

22. Attendance Sheet of Participants:-


Total number of registered participants: - 18

Total number of present participants: - 16

Total number of absent participants: - 02

Attendance Sheet for Date : 2019-06-22
Python Workshop on 22 June 2019 for Teachers and Research scholars
 June 22nd, 2019 to June 22nd, 2019
 Under the National Mission on Education through ICT, MHRD, New Delhi
1476 - Swami Keshvanand Institute Of Technology, Management and Gramothan , Jaipur

Participant			Signature			
S No	Participant ID	Name	Session 1	Session 2	Session 3	Session 4
1	203744	Swagata Payra	Swagata Payra	Swagata Payra	Swagata Payra	Swagata Payra
2	203747	Sunita Verma (AB)	← ABSENT →			
3	204009	Divya Prakash	Divya Prakash	Divya Prakash	Divya Prakash	Divya Prakash
4	204569	Pankaj Dadheech	Pankaj	Pankaj	Pankaj	Pankaj
5	204580	Sanju Choudhary	Sanju	Sanju	Sanju	Sanju
6	204894	Rishi Vyas	Rishi	Rishi	Rishi	Rishi
7	205783	Priyanka	Priyanka	Priyanka	Priyanka	Priyanka
8	205790	Aakriti Sharma	Aakriti	Aakriti	Aakriti	Aakriti
9	206407	Meenakshikutty C	Meenakshikutty C	Meenakshikutty C	Meenakshikutty C	Meenakshikutty C
10	206706	Kalpana Gupta	Kalpana Gupta	Kalpana Gupta	Kalpana Gupta	Kalpana Gupta
11	206776	Rajendra Joshi (AB)	← AB	← AB	← AB	← AB
12	207022	Neha Janu	Neha	Neha	Neha	Neha
13	207423	Krishna Singh	Krishna Singh	Krishna Singh	Krishna Singh	Krishna Singh
14	207495	Priyanka Sharma	Priyanka	Priyanka	Priyanka	Priyanka
15	208389	Neeraj Garg	Neeraj	Neeraj	Neeraj	Neeraj
16	208567	Poonam Varshney	Poonam Varshney	Poonam Varshney	Poonam Varshney	Poonam Varshney
17	208614	Pawanpreet Singh	Pawanpreet Singh	Pawanpreet Singh	Pawanpreet Singh	Pawanpreet Singh
18	208752	Alka Bhargava	Alka Bhargava	Alka Bhargava	Alka Bhargava	Alka Bhargava
19						
20						
21						



Total Registration - 18
 Present Count - 16
 Absent Count - 02

Karlesh Soni
 24/6/19
 Karlesh Soni
 (Coordinator)

19-06-22 16sZeRQC4I

23. Various Images for Publicity:-



PYTHON
FOR TEACHERS
AND
INDUSTRY PROFESSIONALS

**ONE DAY
PYTHON
WORKSHOP**
JUNE 22, 2019

SCAN TO REGISTER



AT SKIT, JAIPUR

[www.it.iitb.ac.in/
nmeict/
announcements.html](http://www.it.iitb.ac.in/nmeict/announcements.html)

CONTACT : 9460066186

Background features Python code snippets: `fier_ob.modifiers.new("...`, `to mirror_ob`, `_object`, `RC):`, `= True`, `= False`, `MIRROR_Y":`, `= False`, `= True`, `= False`, `MIRROR_Z":`, `= False`, `= False`, `= True`, `e end`. A magnifying glass highlights the Python logo.



**ONE DAY
WORKSHOP ON
PYTHON**
JUNE 22, 2019
AT SKIT, JAIPUR

REGISTER AT: www.iitb.ac.in/nmeict/announcements.html

CONTACT : 9460066186

Background features Python topics: **BASICS**, **CONTROL FLOW**, **DATA TYPES**, **STRINGS**, **OPERATORS**, **FUNCTIONS**, **MACHINE LEARNING**, **PANDAS**, **INPUT/OUTPUT**, **EXCEPTIONS**, **OOP**. A QR code is present for registration.



PYTHON WORKSHOP

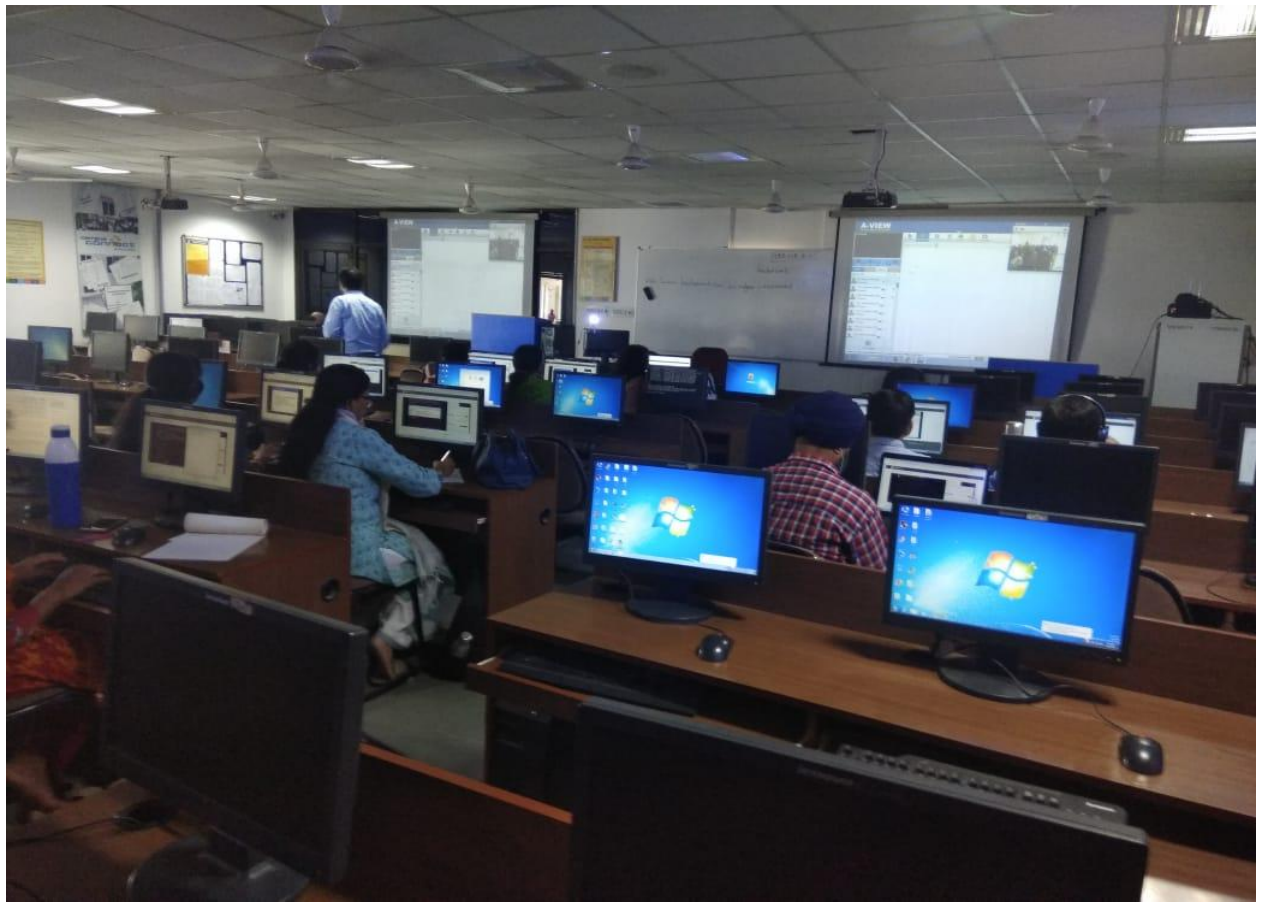
FOR TEACHERS
AND
INDUSTRY PROFESSIONALS

**JUNE 22, 2019
AT SKIT, JAIPUR**

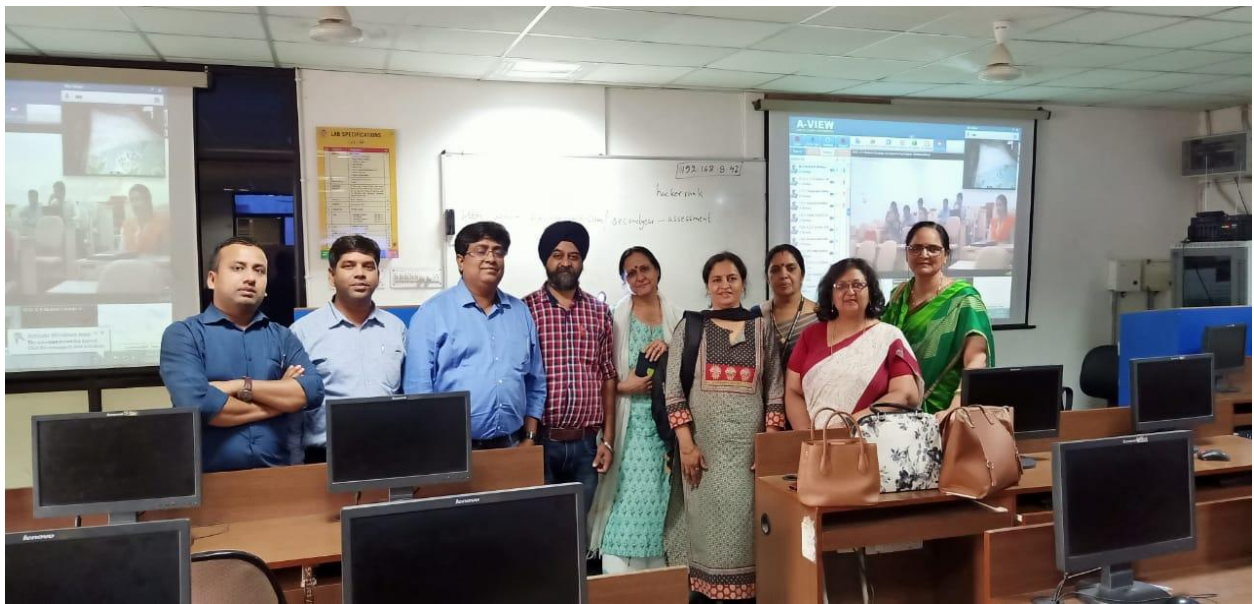
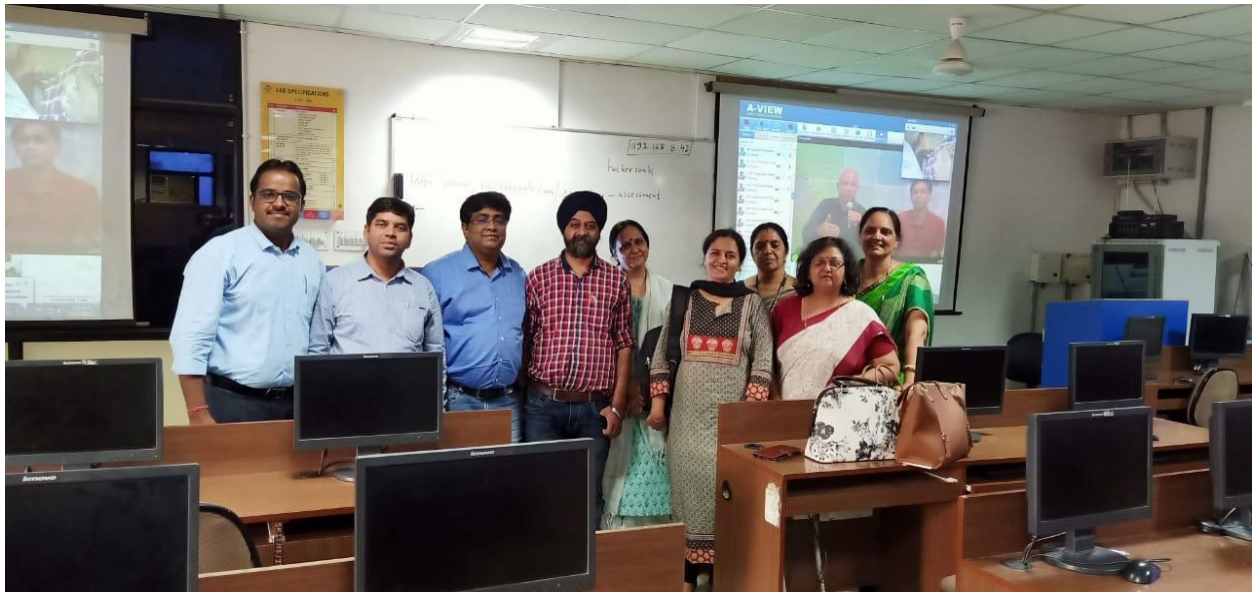
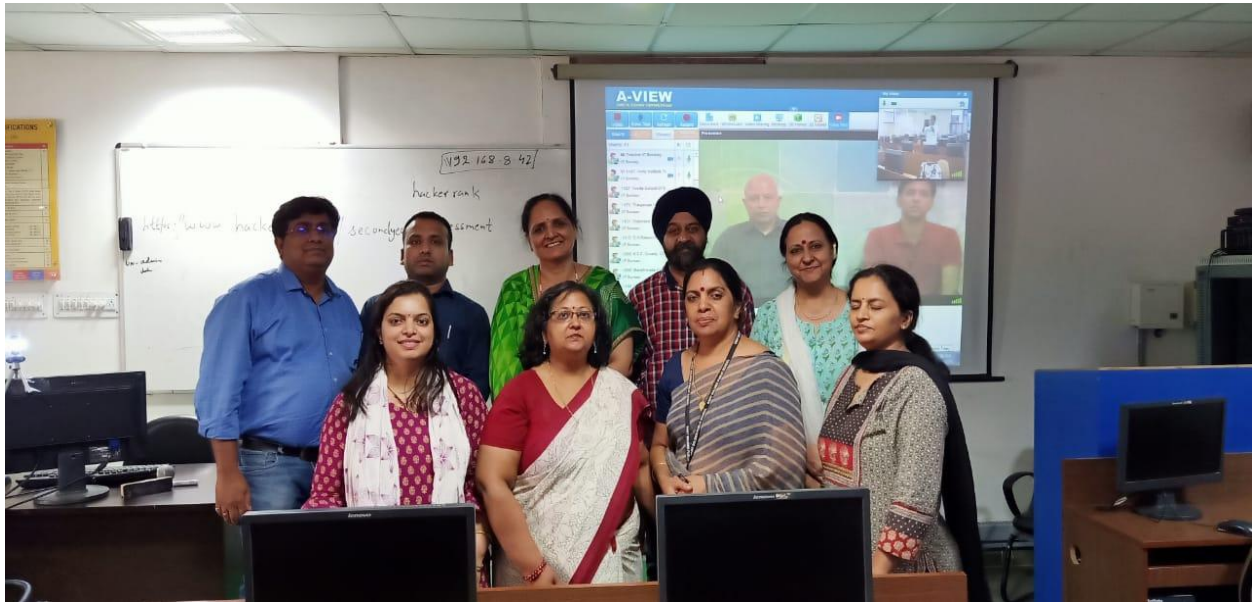


 **94600 66186**

24. Glimpses of Workshop:-







25. Words of Acknowledgement:-

I would like to thank **Prof. Kannan Moudgalya**, Principal Investigator & Project coordinator, **Prof. Prabhu Ramchandran**, Co-Principal Investigator, FOSSEE project and IIT Bombay to conduct such a knowledgeable and useful workshop.

I would also like to thank **Dr. S.L. Surana**, Director (Academics) and **Prof. (Dr.) Ramesh Kumar Pachar**, Principal (SKIT) to allow me to conduct this workshop in the college campus.

I would also like to thank **Prof. (Dr.) Anil Chaudhary**, HOD IT and **Prof. (Dr.) C.M. Choudhary** HOD CSE to allow me to coordinate this workshop in the department and provide me the workshop venue (IAI lab) to conduct this workshop.

I would also like to thank our remote centre coordinator **Dr. Mukesh Kumar Gupta** to provide such a great opportunity and golden guidance to organize this workshop.

I would also like to thank all the technical members and staff to provide their valuable time to successfully organize this workshop.

I would also like to thank all the Participants to their registration and participation in this workshop.

===== Thanks =====



Spoken Tutorials



===== Thanks =====