


NAGARJUNA GOVT. COLLEGE (A)






IIT BOMBAY SPOKEN TUTORIAL

ACADEMIC YEAR: 2019-20

Organized by



NODAL
TELANGANA SKILLS & KNOWLEDGE CENTRE
TS KC
Telangana Skills & Knowledge Centre





CREATING OPPORTUNITIES **DEVELOPING SKILLS** **UNLEASHING POTENTIAL**

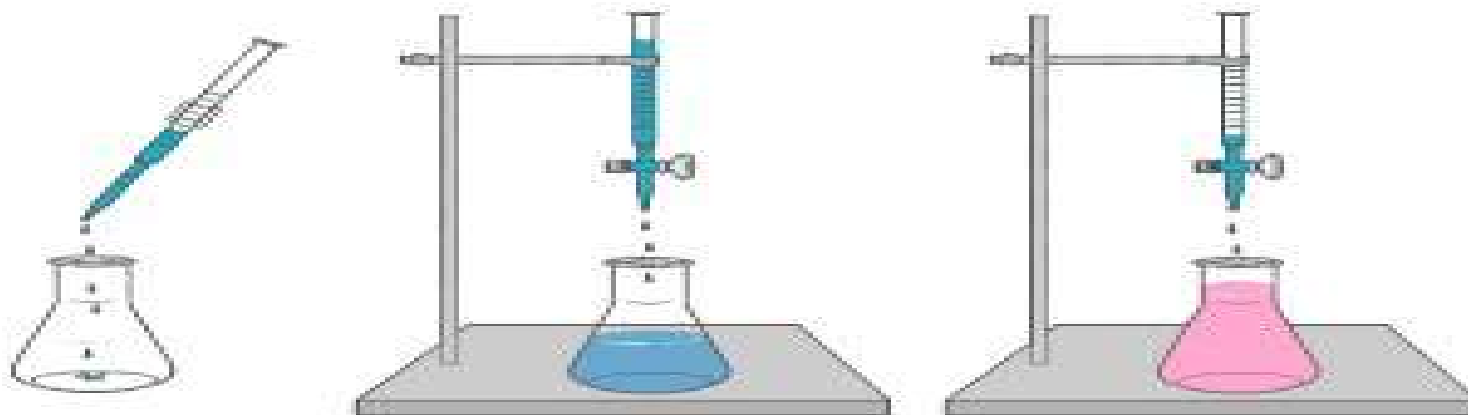
NAGARJUNA GOVERNMENT COLLEGE (A)

Re-Accredited by NAAC with 'A' Grade
Affiliated to Mahatma Gandhi University

NALGONDA



ChemCollective Vlabs



CERTIFICATE

COURSE

The Spoken Tutorial project

- Self explanatory: uses simple language
- Audio-video: uses multisensory approach
- Small duration: has better retention
- Learner-centered: learn at your own pace
- Learning by doing: learn and practice simultaneously
- Empowerment: learn a new FOSS

Target group

- School students
- Undergraduates/Postgraduates
- Research scholars
- Teachers

The Spoken Tutorial Project Team conducts workshops Vlabs and on several FOSS using spoken tutorials and gives certificates to those who pass an online test.

For more details, please write to contact@spoken-tutorial.org

The Spoken Tutorial Project is funded by the National Mission on Education through Information and Communication Technology, Ministry of Human Resource Development, Government of India.

Contact Us

Email : contact@spoken-tutorial.org
Website : <http://spoken-tutorial.org>



IIT Bombay

Spoken Tutorial by IIT Bombay is licensed under a Creative Commons AttributionShareAlike 4.0 International License

All trademarks within this document belong to their legitimate owners.

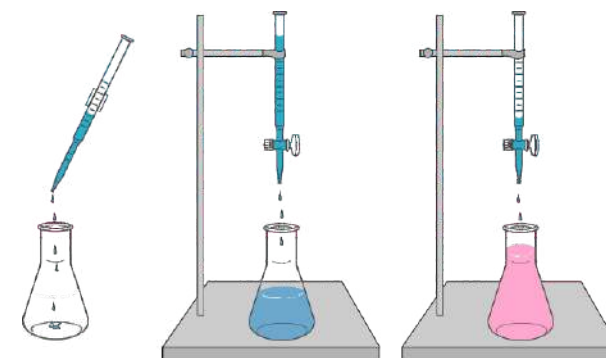


Spoken Tutorial

<http://spoken-tutorial.org>



ChemCollective Vlabs



National Mission on Education through Information and Communication Technology (NMEICT)

www.sakshat.ac.in

Funded by MHRD, Government of India

Introduction

The ChemCollective Virtual Lab is an online simulation of a chemistry lab.

It is designed to help students link chemical computations with authentic laboratory chemistry.

ChemCollective virtual labs are part of National Science Digital Library (NSDL).

<https://nsdl.oercommons.org>

Download and Installation

- The Virtual Lab will run on the following operating systems:

Ubuntu Linux, Mac OS 10.5 and higher, Windows XP, Vista, Windows7 and Windows 10.

- ChemCollective virtual labs are available in both online and offline mode.
- HTML5 based version of the virtual lab is available for online use.
- For offline mode please use the Download link given below.

Download link:

http://chemcollective.org/vlab_download



Features

- ChemCollective virtual labs software is available free of charge to all educators and students.
- Teachers and students can use it on the web without any licensing requirements.
- The lab allows students to select from hundreds of standard reagents (aqueous) and manipulate them in a manner resembling a real lab.
- Lab experiments in the following concepts are available as virtual labs.
 1. **Stoichiometry:** Mole, Molarity and Density, Reaction Stoichiometry and Limiting Reagents
 2. **Thermochemistry:** Energy and Enthalpy
 3. **Equilibrium:** LeChatlier's Principle, Equilibrium Calculations
 4. **Acid-Base chemistry:** Strong Acids and Bases, Weak Acids and Bases, Buffer Solutions, Acid/Base Titrations
 5. **Solubility:** Solubility Product
 6. **Oxidation/Reduction and Electrochemistry:** Standard Reduction Potentials
 7. **Analytical chemistry/Lab Techniques:** Acid/Base Titrations, Gravimetric Analysis

Uses

- Simulation-based exercises offer new ways to promote learning and motivation.
- Interactive exercises can allow students to explore and reinforce fundamental concepts.
- It will help students learn basic laboratory techniques without wastage of chemicals and breakage of apparatus.
- Teachers can use Vlabs as pre-lab exercise and as classroom activities for individuals or teams.
- Students can review and learn chemistry concepts using virtual labs.
- In case where experiments are to be done quickly, virtual labs allows careful observation and safe measurement of parameters.
- They are useful where experiments involve risks to the health and physical integrity of learners.
- They are available all around the year, as opposed to school laboratories, limited to a specific place and for a limited time.
- Virtual labs are cheaper, faster, less risky and more affordable than the real process.



NAGARJUNA GOVT. COLLEGE (A) NALGONDA
TELANGANA SKILL & KNOWLEDGE CENTRE

ChemCollective Virtual Labs Certificate Course

in collaboration with

IIT Bombay Spoken Tutorial

Report:

Telangana Skill & Knowledge Centre (TSKC) conducted a certificate course on ChemCollective Virtual Labs from 01-01-2020. In this course 43 final year students from BBC & MZC were enrolled and successfully completed their course.

Course outcome:

The Virtual Lab is an online simulation of a chemistry lab. It is designed to help students link chemical computations with authentic laboratory chemistry. The lab allows students to select from hundreds of standard reagents (aqueous) and manipulate them in a manner resembling a real lab.

This course help students to learn basic laboratory techniques without wastage of chemicals and breakage of apparatus and also useful where experiments involve risks to the health and physical integrity of learners. In case where experiments are to be done quickly, virtual labs allows careful observation and safe measurement of parameters. By using this course students can review and learn chemistry concepts easily.

NAGARJUNA GOVT. COLLEGE (A) NALGONDA TELANGANA SKILLS & KNOWLEDGE CENTRE

Date: 18-12-2019


NOTICE

All the B.Sc, B.Com & B.A students are hereby informed that TSKC begins IIT Bombay Spoken tutorial registration from 18-12-2019 for the Academic Year 2019-20. Last date for registration is 24-12-2019. Interested students should register in IIT Bombay Spoke Tutorial by scanning the QR Code



Note:

1. It is free of cost & remote learning training
2. After completion of the course you will get a certificate from IIT Bombay Spoken Tutorial
3. Course will be allotted and will intimate on 30-12-2019
4. Already registered student no need to register again


TSKC Co-Ordinator (Nodal)
N.G. College (A), NALGONDA

NAGARJUNA GOVT. COLLEGE(A) NALGONDA**TELANGANA SKILLS & KNOWLEDGE CENTRE****IIT BOMBAY SPOKEN TUTORIAL****ChemCollective Virtual Labs-Student Enrollment**

Sl.No	Name	Roll Number	Group	Year	Email	Gender
1	ANUMULA CHAITANYA	17044028572002	BBC	III	chaitanyaanumula99@gmail.com	Female
2	KORIVI SHIREESHA	17044028572014	BBC	III	korivishireesha@gmail.com	Female
3	MUNAVATH SUMAN	17044028572021	BBC	III	sumanmunavath425@gmail.com	Male
4	NAGASHETTI DHANALAXMI	17044028572023	BBC	III	danalaxminagasetti1432@gmail.com	Female
5	NEELAKANTAM KARTHIK KUMAR	17044028572025	BBC	III	neelakantamkarthikkumar6575@gmail.com	Male
6	REBECA POLE	17044028572027	BBC	III	poleribca@gmail.com	Female
7	VANAM RAJESH	17044028572033	BBC	III	chinnavanam16@gmail.com	Male
8	VEMULA SRILEKHA	17044028572036	BBC	III	srilekhavemula5355@gmail.com	Female
9	KUNDURI SONIYA	17044028572017	BBC	III	soniyakunduri99@gmail.com	Female
10	NAROJU KRISHNAVENI	17044028572025	BBC	III	krishnaveninaroju123@gmail.com	Female
11	KOTA CHINTU	17044028572015	BBC	III	kotachintu3@gmail.com	Male
12	GUNDU SWETHA	17044028572009	BBC	III	swethakumari8493@gmail.com	Female
13	KOLLU PRIYANKA	17044028572012	BBC	III	priyankagoud543@gmail.com	Female
14	KURELLA AKANKSHA	17044028572018	BBC	III	akanksha.kurella00@gmail.com	Female
15	REPAKA BHANU PRAKASH	17044028572030	BBC	III	repakabhanuprakash04@gmail.com	Male
16	VANKUDOTH SARADHA	17044028572034	BBC	III	saradha.vankudoth@gmail.com	Female
17	AITHARAJU DIVYA	17044028457001	MZC	III	divyaaitharaju@gmail.com	Female
18	AMATUL RAHMAN HUMNA	17044028457002	MZC	III	amatulrahmanhumna180@gmail.com	Female
19	CHIRMAMONLA BHAVANI	17044028457007	MZC	III	bhavanichowdary2803@gmail.com	Female
20	DASOJU PUSHPANJALI	17044028457009	MZC	III	pushpanjalidasoju@gmail.com	Female
21	DHANAVATH SHASHIKALA	17044028457010	MZC	III	shashikaladhanavath0303@gmail.com	Female
22	DHARA SAI KUMAR	17044028457011	MZC	III	dharasaikumar1234@gmail.com	Male
23	MD HAMIDA	17044028457014	MZC	III	applehamida8642@gmail.com	Female
24	KANCHEKOMMULA AJAY KUMAR	17044028457015	MZC	III	ak7734833@gmail.com	Male
25	KARAMTOTHU CHARAN NAIK	17044028457016	MZC	III	charansiva231@gmail.com	Male
26	KORUPOLU JYOTHI	17044028457020	MZC	III	jyothikorupolu47@gmail.com	Female
27	MARIPEDDI SHILPA	17044028457022	MZC	III	mshilpa481@gmail.com	Female
28	MAZIYA FATHEMA	17044028457023	MZC	III	maziyafatHEMA23@gmail.com	Female
29	NAGARJUNA SHIVA KUMAR	17044028457024	MZC	III	shivakumar.nagarjuna@gmail.com	Male

NAGARJUNA GOVT. COLLEGE(A) NALGONDA**TELANGANA SKILLS & KNOWLEDGE CENTRE****IIT BOMBAY SPOKEN TUTORIAL****ChemCollective Virtual Labs-Student Enrollment**

Sl.No	Name	Roll Number	Group	Year	Email	Gender
30	PALADUGU SHWETHA	17044028457026	MZC	III	paladugushwetha861@gmail.com	Female
31	RAMYA RAMYA	17044028457027	MZC	III	ramyapinnapureddy@gmail.com	Female
32	SILUVERU SANDHYA	17044028457032	MZC	III	siluveru1999@gmail.com	Female
33	NARSING ARCHANA	17044028457033	MZC	III	archananarsing143@gmail.com	Female
34	SOMAVARAPU HARIKA	17044028457034	MZC	III	somavarapuharika@gmail.com	Female
35	TOOBA FIRDOUS	17044028457037	MZC	III	toobafirdous0786@gmail.com	Female
36	GADAGOTTI VARSHINI	16044028457005	MZC	III	gadagottiamruthavarshini2019@gmail.com	Female
37	KHAIRUNISA BEGUM	17044028457018	MZC	III	khairunnisa19998@gmail.com	Female
38	KONDETI PAVAN	17044028457019	MZC	III	pavanakihi@gmail.com	Male
39	POLENI SAI SAI KUMAR	17044028457028	MZC	III	saikumarpoleni@gmail.com	Male
40	SHAIK SANIA	17044028457030	MZC	III	mohdmahmood01011990@gmail.com	Female
41	SHITAA SUBHASH	17044028457031	MZC	III	subhashseetha11@gmail.com	Male
42	EESAM NIKHITHA	17044028457013	MZC	III	nikithaesam@gmail.com	Female
43	AMATUR RAFIA	17044028457003	MZC	III	amatulrafia862@gmail.com	Female

NAGARJUNA GOVT. COLLEGE (A) NALGONDA TELANGANA SKILLS & KNOWLEDGE CENTRE

Date: 30-12-2019

NOTICE

All the below mentioned groups of IIT Bombay Spoken Tutorial registered students hereby informed that, TSKC allotted your course for the Academic year 2019-20 are shown below. In this regard instructed that complete your course before 31-01-2020.

Sl.No	Group	Year	Allotted Course	Duration
1	BBC	III	ChemCollective Virtual	1 Month
2	MZC	III	Labs	
3	BBA	I	Drupal	
4	MPCS	II & III	Python 3.4.3	

Note: Any doubts contact @ TSKC Lab, NG College(A) Nalgonda



TSKC Co-Ordinator (Nodal)
N.G. College (A), NALGONDA



1 Online / Offline content

1. The online content of Spoken Tutorials can be accessed from :
<https://spoken-tutorial.org/tutorial-search/>
2. You can also download the Spoken Tutorials for offline learning from :
<https://spoken-tutorial.org/cdcontent/>
3. From this link download the FOSS categories in the language you wish to learn.
4. The Spoken Tutorial content will be downloaded as a zip file on your machine.
5. Extract the contents of the zip file & access them.

2 The procedure to practise

1. You have been given a set of spoken tutorials and files.
2. You will typically do one tutorial at a time.
3. You may listen to a spoken tutorial and reproduce all the commands shown in the video.
4. If you find it difficult to do the above, you may consider listening to the whole tutorial once and then practise during the second hearing.

3 ChemCollective Virtual Labs

1. Click on "Select FOSS" or "All FOSS Categories" drop-down and choose "ChemCollective Virtual Labs".
2. Click on "Select Language" or "All Languages" drop-down and choose the language (English, Hindi, Marathi ...) in which you wish to learn.
3. Click on "Submit" button.
4. You will see a list of tutorials based on your selection.
5. Start with the first tutorial in the displayed list.

4 First tutorial: Overview of ChemCollective Vlabs

1. Locate the topic Overview of ChemCollective Vlabs and click on it.

2. To view the tutorial, click on the Play icon which is located in the player.

5 Second tutorial: Preparation of Standard Solutions

1. Locate the topic "Preparation of Standard Solutions" and click on it.
2. To view the tutorial, click on the Play icon which is located in the player.
3. The Pre-requisite will be visible below the player (only for Online contents).
4. Outline, Assignments, Code Files are available below the player.
5. Adjust the size of the browser in such a way that you are able to practise in parallel.

6 Common Instructions to practise

1. You can save your work by taking screenshots of the interface and saving the images in a folder.
2. Write the values of concentration, temperature and pH in your observation notebook.
3. Play-pause-practise the whole tutorial.
4. Once the tutorial is complete, choose the next tutorial from the playlist which is located on the right side or below the player.
5. Follow all the above instructions, till you complete all the tutorials in the series.

7 Common instructions for Assignments

1. Attempt the Assignments as instructed in the tutorial.
2. Take the screenshots and save the images in a folder.
3. Write the values of concentration, temperature and pH in your observation notebook.

8 Eighth tutorial: Buffer Solutions

rial section of this tutorial.

1. You will need internet connection to open the link given in the the Additional reading mate-



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **ANUMULA CHAITANYA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KORIVI SHIREESHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **MUNAVATH SUMAN** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NAGASHETTI DHANALAXMI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NEELAKANTAM KARTHIK KUMAR** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **REBECA POLE** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **VANAM RAJESH** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **DEMULA SRILEKHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KUNDURI SONIYA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NAROJU KRISHNAVENI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

A handwritten signature in black ink, appearing to read 'Kannan Moudgalya'.

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KOTA CHINTU** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **GUNDU SWETHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KOLLU PRIYANKA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KURELLA AKANKSHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **REPAKA BHANU PRAKASH** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **VANKUDOTH SARADHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **AITHARAJU DIVYA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **AMATUL RAHMAN HUMNA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **CHIRMAMONLA BHAVANI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

A handwritten signature in black ink, appearing to read 'Kannan Moudgalya'.

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **DASOJU PUSHPANJALI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **DHANA VATH SHASHIKALA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

A handwritten signature in black ink, appearing to read 'Kannan Moudgalya'.

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **DHARA SAI KUMAR** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **MD HAMIDA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KANCHEKOMMULA AJAY KUMAR** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KARAMTOTHU CHARAN NAIK** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KORUPOLU JYOTHI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **MARIPEDDI SHILPA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **MAZIYA FATHEMA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NAGARJUNA SHIVA KUMAR** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **PALADUGU SHWETHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **RAMYA RAMYA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **SILUVERU SANDHYA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NARSING ARCHANA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **SOMAVARAPU HARIKA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **TOOBA FIRDOUS** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **GADAGOTTI VARSHINI** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KHAIRUNISA BEGUM** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **KONDETI PAVAN** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **POLENI SAI SAI KUMAR** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **SHAIK SANIA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **SHITAA SUBHASH** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **EESAM NIKHITHA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **AMATUR RAFIA** participated in the **ChemCollective Virtual Labs** training organized at **Nagarjuna Government College (Autonomous), Nalgonda** in **January 2020** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **ChemCollective Virtual Labs** were covered in the training.

May 15th 2020

Prof. Kannan M Moudgalya
IIT Bombay