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## Report on Spoken Tutorial

To enhance the skills of the students and faculties college took the subscription of spoken tutorial which is self-paced, multi-lingual courses which ensure that anybody with a computer and a desire for learning can learn from any place, at any time and in a language of their choice. Many students from various departments enrolled for various courses and got the certificate after successful completion of the course.

		Year 2019-2020		
S. No.	Particular	No. of Enrollment	No. of Certificate Issued	Achievement
01	Student/Faculties	507	507	100%

6

Colence & Technology \* INDO

## RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA



(State Technological University of Madhya Pradesh) [Accredited with 'A' grade by NAAC]

Office of TEOIP-III

Airport Road, Gandhi Nagar, Bhopal - 462033

Ph.No:0755-2678805 website: www.rgpv.ac.in mail-rgpvteqip@rgtu.net

Ref No.RGPV/TEQIP-III/2019/03/434

Date: 05.08.2019

To,

Directors/Principals

RGPV Affiliated Institutions

Subject: Regarding Spoken Tutorial Programme.

IITB-ST is an NMEICT, MHRD, Govt.of India initiative to provide MOOC training, E-Tutor for many IT lab courses in syllabus and enhance employability Skill set of UG/PG students. The MOOC E-Tutor is an easy self-learning audio-video method to acquire knowledge on many software like Linux, LaTeX, C, C++, Java, PHPMySQL, and Drupal for Web development and many more.

In this regard you are requested to organize above mentioned activity at your campus and nominate faculty coordinator from respective department and send their details to Smt. Anita Kedare, Training Programmer, IIT Bombay/MHRD, Contact No 9321530562 or email anita.stpiitb@gmail.com with a copy to undersigned. Nominated faculty will coordinate with her for details to organize the training. The IITB-ST Program comes at a nominal subscription fee of Rs. 25000/- per year basis for training and certifying an unlimited number of students. As Spoken Tutorial Programme is an initiative of MHRD to improve Employability Skill in students of affiliated institutions, TEQIP-III will contribute 50% of the certification/training fees and remaining 50% amount by the institution itself.

Prof Sunil Kumar, Hon'ble Vice Chancellor, RGPV has advised to the students to participate in Spoken Tutorial Training Programme. Institutions willing to get registered for this programme may contact at TEQIP-III office.

> Prof. S C Choube Coordinator, TEQIP-III

ale chows

RGPV, Bhopal





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S.P.O.C.

DATE: 15/01/2020

#### NOTICE

This is to inform you that we have taken subscription of spoken tutorial which is multi awarded wining educational content portal. All the students and faculties have the opportunity to do the certification in various courses. The faculty coordinator for the session 2019-20 will be Mr. Shailendra Singh, Assistant Professor, Civil Engineering Department. I request all the student and Faculty/staff to register and do the certification for enhancement of the skills and learn emerging areas.



PRINCIPAL



Approved by AICTE, New Delhi & Affiliated to RGPV, Bhopal

S.P.O.G.

DATE: 15/01/2020

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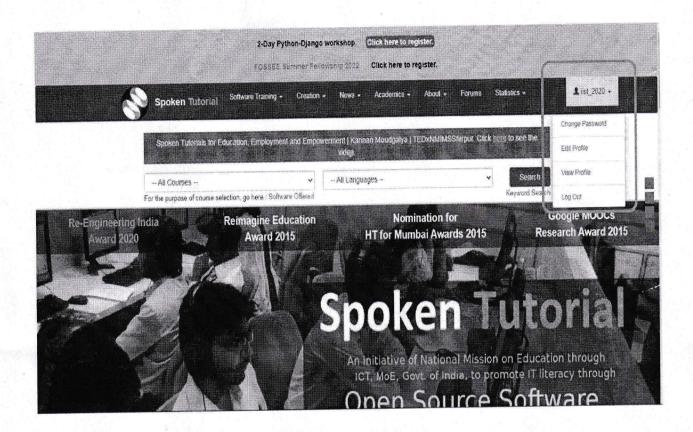


PRINCIPAL



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**IIST Log-in Page** 







S.No.	Course_Title	Course_Title Date of Registartion	Name of the Student/Faculty		
1	DWSIM	22/01/2020	FIRST NAME	LAST NAME	
2	DWSIM	22/01/2020	ANIKET	PATRIKAR	
3	DWSIM	22/01/2020	HARSHIT	KHARPE	
4	DWSIM	22/01/2020	OM LAVKUSH KUMAR	TRIPATHI	
5	DWSIM	22/01/2020	PRITAM	KUMAR	
6	DWSIM	22/01/2020	SACHIN	PATIL	
7	DWSIM	22/01/2020	ABHIJIT SINGH	DEVRA	
8	DWSIM	22/01/2020	RAJKUMAR	DHAKAD	
9	DWSIM	22/01/2020	RASHI	NIGAM	
10	DWSIM	22/01/2020	PRASHANT	KUMBHKAR	
11	DWSIM	22/01/2020	RAHUL	GUPTA	
12	DWSIM	22/01/2020	FARHIN	KHAN	
13	DWSIM	22/01/2020	RAHUL	BHARGAVA	
14	DWSIM	22/01/2020	PANKAJ	MALVIYA	
15	Q Cad	22/01/2020	ADARSH	TIWARI	
16	Q Cad	22/01/2020	AMAN	CHOUDHARY	
17	Q Cad	22/01/2020	AMIT	BARMAN	
18	Q Cad	22/01/2020	ANIL DAS	BAIRAGI	
19	Q Cad	22/01/2020	ANKIT	CHOUHAN	
20	Q Cad	22/01/2020	DEEPAK	CHOUDHARY	
21	Q Cad	22/01/2020	HARSH	PARIHAR	
22	Q Cad	22/01/2020	HERITRAJ SINGH	TANWAR	
23	Q Cad	22/01/2020	HRITIK	BAWDIWALA	
24	Q Cad	22/01/2020	JAYESH	PRAJAPAT	
25	Q Cad	22/01/2020	JINESH	KHASGIWALA	
26	Q Cad	22/01/2020	KANHAIYA	PANWAR	
27	Q Cad	22/01/2020	OJASWA	DUBEY	
28	Q Cad	22/01/2020	PAVAN	THAKUR	
29	Q Cad	22/01/2020	PRANAY	BAWNE	
30	Q Cad	22/01/2020	PRAVEEN KUMAR	YADAV	
31	Q Cad	22/01/2020	RISHAB	SONI	
32	Q Cad	22/01/2020	RITESH	PARMAR	
33	Q Cad	22/01/2020	ROHIT	SHARMA	
34	Q Cad	22/01/2020	SACHIN	MISHRA	
35	Q Cad	22/01/2020	SANDEEP	SAWLIYA	
36	Q Cad	22/01/2020	SANSKAR	SHARMA	
37	Q Cad	22/01/2020	SHIVENDRA	SINGH	
38	Q Cad	22/01/2020	SUDHIR	ZALAYA	
39	Q Cad	22/01/2020	YASH	MAKODE	
40	Q Cad	22/01/2020	YOGESH	BIRLA	
41	Q Cad	22/01/2020	ABHISHEK	THAKARE	
42	Q Cad	22/01/2020	PRADHUMN	CHANDRAWAT	
43	Q Cad	22/01/2020	USMAN GANI	KHAN	
44	PHP and MySQL	22/01/2020	RAVINDEB	SINGH	



45	PHP and MySQL	22/01/2020	VIKAS	SHARMA
46	PHP and MySQL	22/01/2020	PUNIT	GARG
47	PHP and MySQL	22/01/2020	VIPUL	SINGH
48	PHP and MySQL	22/01/2020	PALAK	CHOUHAN
49	PHP and MySQL	22/01/2020	UTKARSH	KHOSLA
50	PHP and MySQL	22/01/2020	SAKSHI	JAIN
51	PHP and MySQL	22/01/2020	DIPTI	BAVNE
52	PHP and MySQL	22/01/2020	SHIVAM	GURJAR
53	PHP and MySQL	22/01/2020	HARSHITA	RATHORE
54	PHP and MySQL	22/01/2020	NIKHIL	NIRGUDKAR
55	PHP and MySQL	22/01/2020	ABHISHEK	SINGH
56	PHP and MySQL	22/01/2020	DEEPIKA	DHAKAD
57	PHP and MySQL	22/01/2020	HARSHIT	THAKUR
58	PHP and MySQL	22/01/2020	RAJ	MAHAJAN
59	PHP and MySQL	22/01/2020	SOURABH	PATIDAR
60	PHP and MySQL	22/01/2020	ANJALI	SAHU
61	PHP and MySQL	22/01/2020	VAIDEHI	SHRIVASTAVA
62	PHP and MySQL	22/01/2020	ANIL KUMAR	SHAH
63	PHP and MySQL	22/01/2020	LOVE	NAGAR
64	PHP and MySQL	22/01/2020	SAMARTH	BAJAJ
65	PHP and MySQL	22/01/2020	CHIRAG	AGRAWAL
66	PHP and MySQL	22/01/2020	PAVAN	GOYAL
67	PHP and MySQL	22/01/2020	MAYANK	LAXKAR
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69	PHP and MySQL	22/01/2020	EKTA	SAINI
70	PHP and MySQL	22/01/2020	AJAY	GURJAR
71	PHP and MySQL	22/01/2020	SAKINA	SAIFEE
72	PHP and MySQL	22/01/2020	LAVISH	JAISWAL
73	PHP and MySQL	22/01/2020	AKASH	JATWA
74	PHP and MySQL	22/01/2020	PUNIT	PASTARIYA
75	PHP and MySQL	22/01/2020	AKHIL	PARIKH
76	PHP and MySQL	22/01/2020	CHETAN	PATIDAR
77	PHP and MySQL	22/01/2020	PUNIT	SOLANKI
78	PHP and MySQL	22/01/2020	ASHWINI KUMAR	MISHRA
79	PHP and MySQL	22/01/2020	PIYUSH	JAIN
80	PHP and MySQL	22/01/2020	GAURAV RAO	PAWAR
81	PHP and MySQL	22/01/2020	AKSHAT	PORWAL
82	PHP and MySQL	22/01/2020	SHIVAM	GHOSHI
83	PHP and MySQL	22/01/2020	SHIVANI	KUPATKAR
84	PHP and MySQL	22/01/2020	MANISH	CHOUDHAR
85	PHP and MySQL	22/01/2020	ABHIRAJ SINGH	THAKUR
86	PHP and MySQL	22/01/2020	SHUBHAM	CHAWRA
87	PHP and MySQL	22/01/2020	NITESH	SAHU
88	PHP and MySQL	22/01/2020	NAYAN	UCHHANA
89	PHP and MySQL	22/01/2020	TRIPTY	SINGH
90	PHP and MySQL	22/01/2020	RAVI	RANJAN





91	PHP and MySQL	22/01/2020	HARSH	DHAKAD
2	PHP and MySQL	22/01/2020	INDERJEET	SINGH
93	PHP and MySQL	22/01/2020	MOHIT	MUKATI
94	PHP and MySQL	22/01/2020	SAUMYA	VERMA
95	PHP and MySQL	22/01/2020	T ROHIT	ATTRAY
96	PHP and MySQL	22/01/2020	ADITYA RAJ	SINGH JHALA
97	PHP and MySQL	22/01/2020	AAYUSH	RAJE
98	PHP and MySQL	22/01/2020	ASHISH	PATEL
99	PHP and MySQL	22/01/2020	ANKIT	RAWAT
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101	PHP and MySQL	22/01/2020	YOGENDRA	HAWDIA
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103	PHP and MySQL	22/01/2020	SHAILENEDRA	THAKUR
104	PHP and MySQL	22/01/2020	MITTU	PARMAR
105	PHP and MySQL	22/01/2020	RAJRATAN	POTE
106	PHP and MySQL	22/01/2020	SATYAM	TIWARI
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114	Arduino	22/01/2020	DHARAMRAJ	SINGH PARIHAR
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122	Arduino	22/01/2020	JAIBHAN	SINGH GAUR
123	Arduino	22/01/2020	KSHANIK	RAJAK
124	Arduino	22/01/2020	MADHAVI	JOSHI
125	Arduino	22/01/2020	NAVVEN	THAKUR
126	Arduino	22/01/2020	PRADEEP	PUNJABI
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194	C & C++	10/2/2020	ANJUMAN	VARSEE
195	C & C++	10/2/2020	MANPREET KAUR	BEDI
196	C & C++	10/2/2020	AAVEG	GUPTA
197	C & C++	10/2/2020	ABHAY	MALAKAR
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204	C & C++	10/2/2020	AJAY	JOSHI
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213	C & C++	10/2/2020	ANIMESH	GURJAR
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217	C & C++	10/2/2020	ASHISH	PANCHAL
218	C & C++	10/2/2020	AYUSHI	JAISWAL
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220	C & C++	10/2/2020	BHUPENDRA	DEVADA
221	C & C++	10/2/2020	DARSHAN	HIREKURUBAR
222	C & C++	10/2/2020	DEEBA	AFRIDI
223	C & C++	10/2/2020	DEEPALI	MADHURE
224	C & C++	10/2/2020	DHEERAJ KUMAR	YADUWANSHI
225	C & C++	10/2/2020	DHEERENDRA	MUKATI
226	C & C++	10/2/2020	DHRUPAD	ADHIKARI
227	C & C++	10/2/2020	DHWANI	JAIN
228	C & C++	10/2/2020	DILIP	YADAV





229	C & C++	10/2/2020	DIVYANSHU	CHOUHAN
230	C & C++	10/2/2020	EKTA	JADHAV
231	C & C++	10/2/2020	ESHA	MANGAL
232	C & C++	10/2/2020	GAGAN	JOSHI
233	C & C++	10/2/2020	GOUTAM	YADAV
234	C & C++	10/2/2020	HARSHIT	PANDEY
235	C & C++	10/2/2020	HARSHVARDHAN	CHAUHAN
236	C & C++	10/2/2020	JAYA	TIWARI
237	C & C++	10/2/2020	JAYESH	KASHYAP
238	C & C++	10/2/2020	KARTIK	AWATE
239	C & C++	10/2/2020	KHUSHBOO	KHARCHE
240	C & C++	10/2/2020	KRISHNA GOPAL	PATIDAR
241	C & C++	10/2/2020	LAVISH	KOTHARI
242	C & C++	10/2/2020	LUCKY	BHATIA
243	C & C++	10/2/2020	MANISHA	GUPTA
244	C & C++	10/2/2020	MARIYA JOHAR	HUSSAIN
245	C & C++	10/2/2020	MAYANK	JOSHI
246	C & C++	10/2/2020	MOHIT	MISHRA
247	C & C++	10/2/2020	MOHIT	PATIDAR
248	C & C++	10/2/2020	MONU	SINGH
249	C & C++	10/2/2020	MUSKAN	THAKUR
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251	C & C++	10/2/2020	NAYAN	ARORA
252	C & C++	10/2/2020	NILESH	SHARMA
253	C & C++	10/2/2020	NIRMAL	LASSANKAR
254	C & C++	10/2/2020	NOUSHAD	KHAN
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256	C & C++	10/2/2020	PANKAJ	SHIVHARE
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258	C & C++	10/2/2020	POOJA	PRASAD
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261	C & C++	10/2/2020	PRAGYA	SHARMA
262	C & C++	10/2/2020	PURSHOTTAM	PATIDAR
263	C & C++	10/2/2020	RAHUL	GOYAL
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265	C & C++	10/2/2020	RAHUL	MANDLOI
266	C & C++	10/2/2020	RAHUL	LOHAR
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269	C & C++	10/2/2020	RAJENDRA	CHOURASIYA
270	C & C++	10/2/2020	RAVI	YADAV
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273	C & C++	10/2/2020	RUCHIR	JAIN
274	C & C++	10/2/2020	RUTVI	KASHIKAR



T	606	10/2/2020	SAKSHI	SAXENA
275	C & C++	10/2/2020	SAKSHI	SAKHI
276	C & C++	10/2/2020	SAKSHI	SAXENA
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279	C & C++	10/2/2020		JAMOD
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281	C & C++	10/2/2020	SANSKAR	SHARMA
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283	C & C++	10/2/2020	SANYAM	JOSHI
284	C & C++	10/2/2020	SAURABH	YADAV
285	C & C++	10/2/2020	SAWAN	CHOUDHARY
286	C & C++	10/2/2020	SHASHANK	RUNGHE
287	C & C++	10/2/2020	SHEHARYAR AHMAD	KHAN
288	C & C++	10/2/2020	SHRESHTH	GUPTA
289	C & C++	10/2/2020	SHUBHAM	SINGHAL
290	C & C++	10/2/2020	SOHAIL	MANSOORI
291	C & C++	10/2/2020	SOHEL	KHAN
292	C & C++	10/2/2020	SPARSH	RATHI
293	C & C++	10/2/2020	SURENDRA	BANKAR
294	C & C++	10/2/2020	TAHA	BOMBAYWALA
295	C & C++	10/2/2020	TUSHAR	SHARMA
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297	C & C++	10/2/2020	UTKARSH	MAHAJAN
298	C & C++	10/2/2020	VIKAS	DUBEY
299	C & C++	10/2/2020	VINAY	SOLANKI
300	C & C++	10/2/2020	VISHAL SINGH	CHOUHAN
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302	C & C++	10/2/2020	YASH	MEHTA
303	C & C++	10/2/2020	YASH	KHANVILKAR
304	C & C++	10/2/2020	YASH VARDHAN	PARIHAR
305	C & C++	10/2/2020	SHARAD KUMAR	SONI
306	C & C++	10/2/2020	AARTI	BHAWSAR
307	C & C++	10/2/2020	ABHIJEET	SINGH
308	C & C++	10/2/2020	ADARSH	YADUWANSHI
309	C & C++	10/2/2020	ADITI	CHOURASIA
	C & C++	10/2/2020	ADITYA	PANDEY
310	C & C++	10/2/2020	ADNAN	QURESHI
311		10/2/2020	AJEET	JAT
312	C & C++	10/2/2020	AJEET	SINGH CHOUHAN
313	C & C++	10/2/2020	AKSHAT	UDEENIYA
314	C & C++	10/2/2020	AMAN	NIGAM
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316	C & C++	10/2/2020	AMAN	MALVIYA
317	C & C++	10/2/2020	AMAN	KUMAR
318	C & C++	10/2/2020		SINGH CHAUHAN
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275	C & C++	10/2/2020	SAKSHI	SAXENA
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278	C & C++	10/2/2020	SALONI	KHANDELWAL
279	C & C++	10/2/2020	SAMEER	SHRIVASTAVA
280	C & C++	10/2/2020	SANDEEP	JAMOD
281	C & C++	10/2/2020	SANSKAR	SHARMA
282	C & C++	10/2/2020	SANYAM	MODI
283	C & C++	10/2/2020	SANYAM	JOSHI
284	C & C++	10/2/2020	SAURABH	YADAV
285	C & C++	10/2/2020	SAWAN	CHOUDHARY
286	C & C++	10/2/2020	SHASHANK	RUNGHE
287	C & C++	10/2/2020	SHEHARYAR AHMAD	KHAN
288	C & C++	10/2/2020	SHRESHTH	GUPTA
289	C & C++	10/2/2020	SHUBHAM	SINGHAL
290	C & C++	10/2/2020	SOHAIL	MANSOORI
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292	C & C++	10/2/2020	SPARSH	RATHI
293	C & C++	10/2/2020	SURENDRA	BANKAR
294	C & C++	10/2/2020	TAHA	BOMBAYWALA
295	C & C++	10/2/2020	TUSHAR	SHARMA
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297	C & C++	10/2/2020	UTKARSH	MAHAJAN
298	C & C++	10/2/2020	VIKAS	DUBEY
299	C & C++	10/2/2020	VINAY	SOLANKI
300	C & C++	10/2/2020	VISHAL SINGH	CHOUHAN
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302	C & C++	10/2/2020	YASH	MEHTA
303	C & C++	10/2/2020	YASH	KHANVILKAR
304	C & C++	10/2/2020	YASH VARDHAN	PARIHAR
305	C & C++	10/2/2020	SHARAD KUMAR	SONI
306	C & C++	10/2/2020	AARTI	BHAWSAR
307	C & C++	10/2/2020	ABHIJEET	SINGH
308	C & C++	10/2/2020	ADARSH	YADUWANSHI
309	C & C++	10/2/2020	ADITI	CHOURASIA
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311	C & C++	10/2/2020	ADNAN	QURESHI
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320	C & C++	10/2/2020	AMAN SINGH	TAWAR
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330	C & C++	10/2/2020	ANKIT KUMAR	SAKET
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358	C & C++	10/2/2020	GEETIKA	SINGH RATHORE
359	C & C++	10/2/2020	HARISH	RAJPUT
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378	C & C++	10/2/2020	JUHI	PATEL
379	C & C++	10/2/2020	JYOTIRADITYA	KEDARE
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431	C & C++	10/2/2020	PRIYANSHU	TRIPATHI
432	C & C++	10/2/2020	PULKIT	SABLOK
433	C & C++	10/2/2020	PUSHPENDRA	JADON
434	C & C++	10/2/2020	RAGHAVRAJ	PATIL
435	C & C++	10/2/2020	RAHUL	SANGITLA
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446	C & C++	10/2/2020	RISHITA	BAVISKAR
447	C & C++	10/2/2020	RITIK	MORE
148	C & C++	10/2/2020	ROSHAN	SHARMA
149	C & C++	10/2/2020	ROUNAK	KOUSHAL
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464	C & C++	10/2/2020	SHAHZEB	QURESHI
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475	C & C++	10/2/2020	SOURABH	ATRE
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478	C & C++	10/2/2020	SUJEET	VISHVKARMA
479	C & C++	10/2/2020	SUMEET	MANDLOI
480	C & C++	10/2/2020	SURABHI	SRIVASTAVA
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482	C & C++	10/2/2020	SURBHI	DHANOTIYA
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487	C & C++	10/2/2020	TUSHAR	VERMA
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493	C & C++	10/2/2020	VARUN	PARADKAR
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499	C & C++	10/2/2020	VIKRAMADITYA	KUMAR
500	C & C++	10/2/2020	VISHWAJEET	VERMA
501	C & C++	10/2/2020	VIVEK	MISHRA





502	C & C++	10/2/2020	VIVEK	
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505	C & C++	10/2/2020	MOHD. AYAN	CHOUDHARY
506	C & C++	10/2/2020	AYUSH SINGH	ABBASI
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## **Sample Certificates**



## Certificate of Participation

This is to certify that AARTI BHAWSAR participated in the C and Cpp training organized at Indore Institute of Science and Technology, Indore in January 2020 semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to C and Cpp were covered in the training.

April 10th 2020

Prof. Kannan M Moudgalya

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Ministry of Education (previously MHRD), Govt. of India



## Certificate of Participation

This is to certify that ADITI CHOURASIA participated in the C and Cpp training organized at Indore Institute of Science and Technology, Indore in January 2020 semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to C and Cpp were covered in the training.

April 10th 2020

Prof. Kannan M Moudgalya

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## Certificate of Participation

This is to certify that ADARSH TIWARI participated in the QCad training organized at Indore Institute of Science and Technology, Indore in January 2020 semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to QCad were covered in the training.

March 22nd 2020

Prof. Kannan M Moudgalya

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# Certificate of Participation

This is to certify that DEEPAK CHOUDHARY participated in the QCad training organized at Indore Institute of Science and Technology, Indore in January 2020 semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to QCad were covered in the training.

March 22nd 2020

Prof. Kamnan M Mondgalya

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### 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 practise simultaneously
- Empowerment: learn a new FLOSS
   (Free/Libre and Open Source Software)

#### Target Audience

High school, College and Engineering students

Pre-requisites for Basic level tutorials:

- Basic knowledge of electronics
- Electronic components and connections
- Knowledge of C programming Additional Pre-requisites for Intermediate level tutorial:
- Assembly language

### Workshops

The Spoken Tutorial Project Team conducts workshops on Arduino and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.

For more details, please visit https://spoken-tutorial.org

#### Forum

We have developed a beginner friendly Forum to answer specific questions pertaining to any part of a particular tutorial.

For more details, please visit https://forums.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: https://spoken-tutorial.org

Forum help available to all learners

Content available in 22 Indian languages



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## **Spoken Tutorial**

https://spoken-tutorial.org



Scan the QR code to visit Spoken Tutorial website



National Mission on Education through Information and Communication Technology (NMEICT) www.sakshat.ac.in

Funded by MHRD, Government of India.

### What is Arduino?

- Arduino is an open-source electronics platform used for building electronics projects.
- Arduino consists of both a physical programmable circuit board or microcontroller and a software IDE (Integrated Development Environment) that runs on the computer.
- It is used to write and upload computer code to the physical board.
- · It is intended for making interactive projects.
- Download Arduino IDE from www.arduino.cc

### Features of Arduino IDE

- Works on Linux, Windows and Mac operating systems
- Has many in-built functions that make programming simple and easy
- Easy to write code and upload it to the physical board
- Arduino IDE can be used with any Arduino board
- · Can be easily adapted for IoT applications
- Arduino can be turned into IoT product by adding ESP8266 wifi module

### Benefits of using Arduino Kit

- Arduino boards are less expensive compared to other microcontrollers platform.
- The Arduino programming environment is easyto-use for beginners.
- For advanced users, the language can be expanded through C++ libraries and AVR-GCC programming language can be added to Arduino programs.
- The modules are published under a Creative Commons license, so circuit designers can make their own version of the module.

- Arduino platform was designed for hobbyises, students and professionals to create IoT applications that play in the human interface world using sensors, motors, etc.
- Arduino can interact with buttons, LEDs, LCDs, motors, speakers, cameras, TV and smartphones, etc.
- Arduino can be connected to one or more sensors to capture the data.

### Spoken Tutorials in Arduino series

#### Basic Level

- Overview of Arduino
- · Electronic components and connections
- Introduction to Arduino
- · Arduino components and IDE
- First Arduino Program
- Arduino with Tricolor LED and Push button
- Arduino with LCD
- Display counter using Arduino
- Seven segment display
- Pulse Width Modulation
- Analog to Digital Conversion
- Wireless Connectivity to Arduino

#### Intermediate Level

- Assembly programming through Arduino
- · Digital logic design with Arduino
- AVR-GCC programming through Arduino
- Interfacing LCD through AVR-GCC programming
- · Mixing Assembly and C programming

### Popular uses of Arduino

- Home automation (controlling lights, fans and other appliances) via Android smartphone
- Traffic light control
- · PC controlled robotic arm
- Temperature controller
- · Anti-theft camera system
- Automated irrigation system
- Feeder for Aquarium
- Garage parking
- Line follower robot

## Components required to practise

#### **Arduino Spoken Tutorials**

- 1. Arduino UNO or Compatible Board (1 no.)
- 2. USB Power Cable (1 no.)
- 3. Resistor 220 ohms (6 nos.)
- 4. Resistor 10K Ohms (2 nos.)
- 5. Resistor 1K Ohms (4 nos.)
- 6. Breadboard (1 no.)
- 7. Tricolor LED Common Cathode (1 no.)
- 8. Red LED Common Cathode (1 no.)
- 9. Seven segment display Common cathode (1 no.)
- 10. Seven segment display Common anode (1 no.)
- 11. Decoder IC 7447 (1 no.)
- 12. LCD 16 X 2 soldered with pin header (1 no.)
- 13. Jumper wires Male to Male (20 nos.)
- 14. Jumper wires Male to Female (8 nos.)
- 15. Potentiometer 10K Ohms (1 no.)
- 16. ESP8266 es01 WiFi Black color Module (1 no.)
- 17. DHT11 Temp\_Humidity Sensor Module (1 no.)
- 18. L293D H-Bridge Motor driver IC (1 no.)
- 19. Toy Motor (1 no.)
- 20. Buzzer (1 no.)
- 21. Push Button Switch (2 nos.)



### 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 practise simultaneously
- Empowerment: learn a new FLOSS (Free/Libre and Open Source Software)

#### Target Group

- · Students- High School and College
- Working professional- Software users, developers and trainers
- · Research scholars
- · Community at large

### Workshops

The Spoken Tutorial Project Team conducts workshops on C and C++ and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.

For more details, please visit https://spoken-tutorial.org

#### Forum

We have developed a beginner friendly Forum to answer specific questions pertaining to any part of a particular tutorial.

For more details, please visit https://forums.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: https://spoken-tutorial.org

Forum help available to all learners

Content available in 22 Indian languages



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Scan the QR code to visit Spoken Tutorial website

THE



**G** 

PROGRAMMING LANGUAGE

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

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Funded by MHRD, Government of India.

### About C

C is a general-purpose programming language, initially developed by Dennis Ritchie between 1969 and 1973 at Bell Labs. Its design provides constructs that map efficiently to typical machine instructions. C is one of the most widely used programming language and there are very few computer architectures for which a C compiler does not exist.

#### Features

- C has facilities for structured programming and allows lexical variable scope and recursion.
- All executable code is contained within subroutines, called "functions."
- C program source text is free-format, using the semicolon as a statement terminator and curly braces for grouping blocks of statements.
- Typing is static, but weakly enforced: all data has a type, but implicit conversions can be performed; for instance, characters can be used as integers.
- Complex functionality such as I/O, string manipulation, and mathematical functions are easy to implement with library routines.

### About C++

- C++ is a statically typed, free-form, compiled, general-purpose programming language. It was developed by Bjarne Stroustrup starting in 1979, at Bell Labs.
- It adds object-oriented features such as classes, and other enhancements to the C programming language.

- The language began as enhancements to C, first adding classes, then virtual functions, operator overloading, multiple inheritances, templates, and exception handling among other features.
- C++ is also one of the most popular programming languages and can be implemented on most hardware and OS platforms.
- As an efficient compiler to native code, its application domains include:
- · Systems software
- Application software
- · Device drivers
- · Embedded software
- High-performance server and client applications
- · Entertainment software like video games



#### Features

- Classes: By using classes, we can create userdefined data types. A class is the collection of a set of data and code. An object is the instance of a class.
- Inheritance: Allows one data type to acquire properties of other data types. This provides the idea of reusability, that means we can add new features to an existing class without

- modifying it.
- Data Abstraction and Encapsulation:
   Encapsulation means hiding data from the data structures. Here, the data is accessible to only the functions that are allowed to access it. Abstraction means representing essential features without including background details.
- Polymorphism: means one interface can be used for multiple implementations, so that object can behave differently for each implementation.
- Dynamic Binding: At runtime, the code matching the object under the current reference will be called.

#### C and C++ Advantages

- Powerful and flexible: C/C++ are used for developing operating systems, compilers, parsers, interpreters, word processors, search engines and graphic programs.
- Support: C requires less runtime support
- Portable programming language: A variety of C/ C++programm written for one computer system can be compiled and run on another system, with little or no change.
- Modular: Written in routines called functions and classes (C++), programs can be used in other applications or programs.
- Preferred by professional programmers: A variety of C/C++ resources and helpful supports are widely available.
- Standardised: Many standards have been documented, maintained and updated for C and C++ as standard references.

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### arget group

Jndergraduates/Postgraduates
lesearch scholars
leachers

he Spoken Tutorial Project Team conducts vorkshops on DWSIM and several FOSS using spoken tutorials and gives certificates o those who pass an online test.
For more details, please write to contact@spoken-tutorial.org

ittp://dwsim.fossee.in General Queries: Contact\_dwsim@fossee.in The Spoken Tutorial Project
is funded by the
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through Information and
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Human Resource Development,
Government of India.

#### **Contact Us**

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



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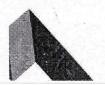




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#### Overview

DWSIM is an open-source CAPE-OPEN compliant chemical process simulator for Windows, Linux and Mac. Built on the top of the Microsoft .NET 4.0 and Mono Platforms and featuring a rich Graphical User Interface (GUI), DWSIM allows chemical engineering students and chemical engineers to better understand the behavior of their chemical systems by using rigorous thermodynamic and unit operations models with no cost at all.

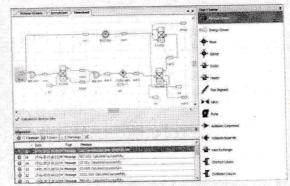
#### Features

DWSIM has an easy-to-use graphical interface with many of the features present in commercial simulators:

- ► VLE, VLLE, SLE & Aqueous Electrolyte calculations using Equation of State, Activity Coefficient & Rigorous Distillation/ Absorption Column models
- ► Supports CAPE-OPEN Unit Operations and Thermo 1.0/1.1 Property Packages
- ► Thermodynamic Equilibrium and Property Calculators
- ► Supports ChemSep's Component Database, Column Model & Chemical Reactions/Reactors
- ▶ DWSIM supports the following Flash types: Pressure - Temperature (PT), Pressure - Enthalpy (PH), Pressure - Entropy (PS), Pressure - Vapor Fraction (PVF) and Temperature - Vapor Fraction (TVF)

#### **Downloads**

You can get started by visiting http://dwsim.inforside.com.br/wiki ► It will give you a general idea of DWSIM features. All the links from Downloads to Tutorials can be found on the left hand side pane



The recyle and purge in synthesis of Methanol

### **Flowsheeting Project**

The Flowsheeting Project aims to port the flowsheet created for any process development project, using the Free and Open Source Software DWSIM.

#### The objectives of this project are:

- ► To make it easy for students to create their process flowsheet directly in DWSIM
- ► To make available a large number of flowsheeting examples through crowdsourcing
- ► To demonstrate the power of DWSIM to the industry and to encourage them to adopt it
- ► To bring good students to the attention of industry for possible internship and employment
- ► To serve as the starting point for more advanced simulation, such as dynamic simulation, startup and shut down simulations using other open source simulators such as OpenModeiica

#### **Textbook Companion**

The Textbook Companion (TBC) activity aims to port solved examples from standard textbooks using a Free and Open source software.

Create Textbook Companions for DWSIM. Earn attractive honorarium and certification.

### The objectives of this project are:

- ► To make individuals learn FOSS through a practical approach
- ► Provide a huge database of Textbook Companions as a learning resource
- ▶ To make it easy for users of such text-books to start using FOSS
- ▶ To improve the documentation available for FOSS

### **Lab Migration**

Migrate labs that use proprietary software to DWSIM. Colleges can save a large amount of money that is spent on procuring licenses for commercial software by switching to FOSS.

# The Lab Migration team helps in the following ways:

- ► Provide suggestions on the different ways FOSS can be implemented in the laboratory
- ► Coordinate the migration of the lab to a FOSS only laboratory
- ► Provide solutions to the lab's problem statements





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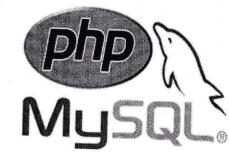


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#### Introduction

PHP or "PHP: Hypertext Preprocessor" is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. Its syntax draws upon C, Java and PERL, and is easy to learn.

The main goal of the language is to allow web developers to write dynamically generated web pages quickly, but you can do much more with PHP.

#### Uses of PHP .

- · To create large websites
- For E-commerce like osCommerce, OpenCart
- To create online discussion forums like phpBB
- To create content management systems like Drupal, Joomla
- To create e-learning management systems like Moodle
- To develop web-based management tools like phpMyAdmin And many more..

#### Introduction

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. The SQL phrase stands for Structured Query Language. Applications which use MySQL data bases include: Joomla, Word Press, MyBB, phpBB, Drupal and other software built on the LAMP software stack.

A third party open source software "phpMyAdmin" is used as a web-based front end for managing MySQL databases easily and effeciently. It is widely installed by Web hosts worldwide. Also it is included in the convenient LAMP, MAMP and WAMP software bundle installers.

MySQL is used in many high-profile, largescale World Wide Web products, including Wiki-pedia, Google and facebook.

#### Features of PHP & MySQL

- · Scalability and flexibility
- · High speed and high performance
- Data protection
- · Comprehensive Application Development
- Management tools
   And many more...

#### Benefits

- A large chunk of facebook, the world's leading social networking site, has a huge code based in PHP and it uses MySQL as database to store information of 1 billion+users!
- PHP is the most preferred language for web development by free-lance developers across the globe.
- Many free and open source CMS like Drupal, Moodie, etc. are created using PHP & MySQL.
- PHP & MySQL has a large user and develope community.

#### Links:

Original videos are available at http://phpacademy.org

PHP Official Website -http://www.php.net

MYSQL Official Website - http://www.mysgl.com

W3Schools - PHP and MySQL Tutorials http://www.w3schools.com/php/default.asp http://www.w3schools.com/sql/default.asp =