

Emerging Technologies for Effective Teaching & Learning

Continuing Education Program for Next Education India Pvt Ltd

Conducted by Educational Technology, IIT Bombay

January 9-11, 2020




MOOCs:

Part I - What, When, How?

Part II - Why do I need MOOCs?

Gargi Banerjee



What is a MOOC?

What is a MOOC?

Show of hands:

- Are you familiar with the term MOOCs?
- Have you sampled a MOOC?
- Have you done an IITB MOOC?
- Which MOOC platform are you familiar with?

What is a MOOC?

M

Massive



There may be thousands of learners in a MOOC

O

Open



Anybody can register for MOOC from anywhere

O

Online



MOOC is offered fully online

C

Course



MOOC is similar to other online college courses

Example of a MOOC

The screenshot displays the Swayam MOOC website interface. At the top left is the Swayam logo with the tagline 'FREE ONLINE EDUCATION'. To the right are navigation links: 'About Swayam | All Courses | National Coordinators | Local Chapters'. Below the logo is a 'COURSE CATALOG' dropdown menu, a search bar labeled 'Search Catalog...', and a red 'SIGN-IN / REGISTER' button.

The main content area is divided into two sections: 'Upcoming (Enrollment Open)' and 'Ongoing (Enrollment Closed)'. The 'Upcoming' section contains six course cards arranged in a 2x3 grid. The first row includes 'Accountancy XI Part-I', 'Biology XI Part-I', and 'Biology XI Part-II'. The second row includes 'Biology XII Part-I', 'Business Studies XII Part-I', and 'Chemistry XI Part-I'. Each card features a banner image, the course title, the instructor's name, the institution (DESS, NCERT, New Delhi), the NCERT logo, the duration (24 weeks), the start date (01-10-2019), the exam date (1 Mar, 2020), and the enrollment end date (31 Dec, 2019).

On the left side, there are two filter sections: 'FILTERS' and 'CATEGORY'. The 'FILTERS' section includes dropdown menus for 'National Coordinator' (set to 'All'), 'Course Duration' (set to 'All'), 'Course Exam Date' (set to 'All'), and 'Course Credits' (set to 'All'). The 'CATEGORY' section includes a dropdown menu for 'School'.

Example of a MOOC

The screenshot shows the Swayam MOOC interface for the course 'Demystifying networking'. The page features a navigation bar with links for 'Announcements', 'About the Course', 'Ask a Question', 'Progress', and 'Mentor'. The 'Ask a Question' link is circled in black. On the left, a sidebar menu lists course sections: 'Course outline', 'How to access the portal', 'Warm Up', 'Week 1: Layered Network and Network Addressing' (circled in red), 'Week 2: Routing', 'Week 3: Transport and Application Layers', 'Week 4: Security and Troubleshooting', 'Live Sessions' (circled in red), and 'Download Videos' (circled in red). The main content area includes the course title, a description, and a video player showing an introduction video. Below the video is a small portrait of the instructor.

FREE ONLINE EDUCATION
swayam
जिहासे शिक्षा, प्रगति और विकास

gargibaner@gmail.com ▾

NPTEL » Demystifying networking

Announcements About the Course **Ask a Question** Progress Mentor

Course outline

How to access the portal

Warm Up

Week 1: Layered Network and Network Addressing

Week 2: Routing

Week 3: Transport and Application Layers

Week 4: Security and Troubleshooting

Live Sessions

Download Videos

Demystifying networking

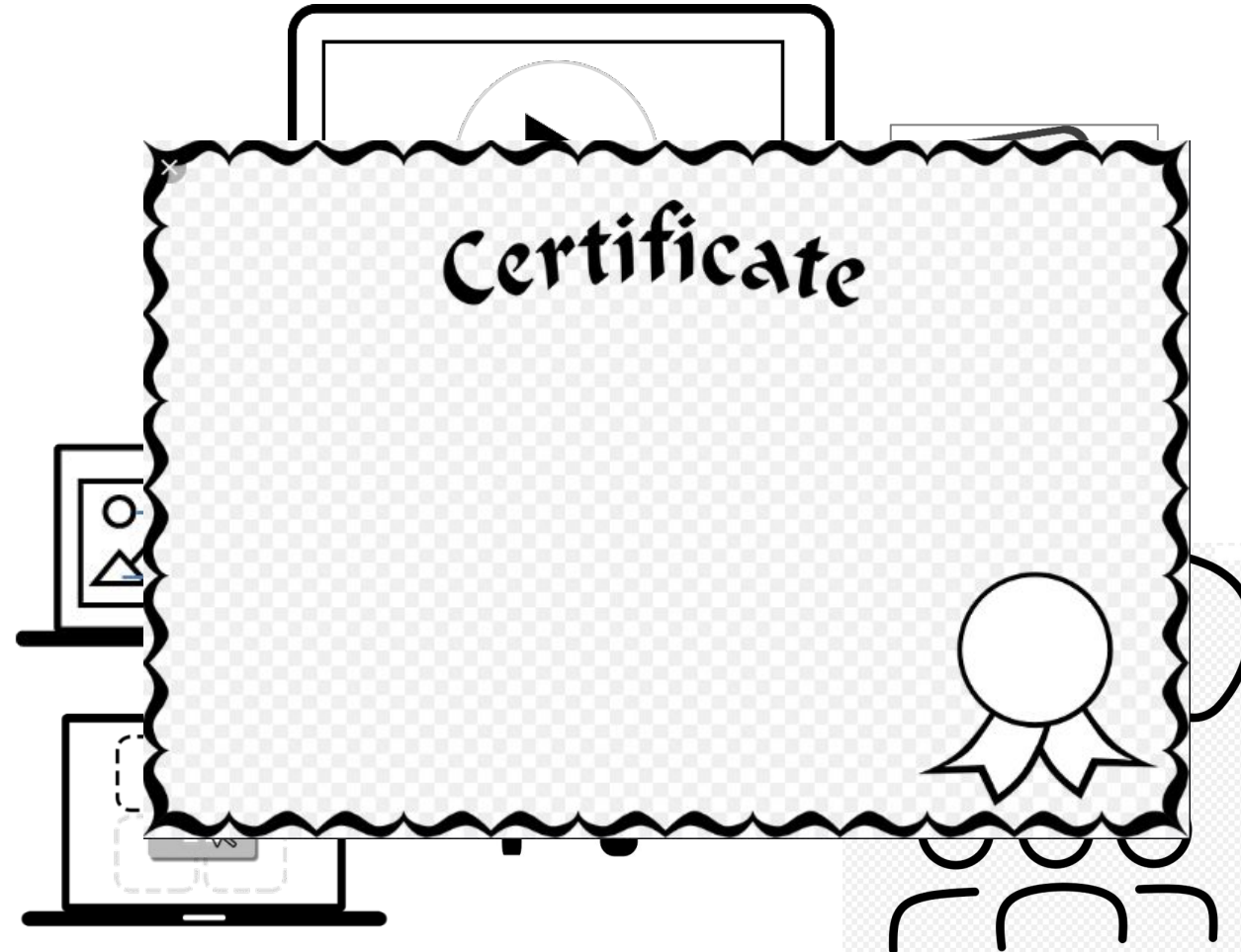
This course will provide students with an overview of networking concepts and technologies. It is meant as a primer for non-majors, i.e., for students who don't have networking as a core course in their curriculum. After this primer, students may choose to take other networking courses for delving deeper into specific technologies.

INTENDED AUDIENCE: Computer networking
PREREQUISITES: Nil
INDUSTRY SUPPORT: Networking, Security, Troubleshooting

Introduction-Demystifying Netwo...

Instructional Components in MOOCs

- Videos
- Assignments
- Discussion Forum
- Additional resources
- Interactive Sessions
- Certificate on completion



Example of a MOOC

Course outline

How to access the portal

Warm Up

Week 1: Layered Network and Network Addressing

- The CEO's Problem
- Layered Nature of Computer Networks
- Introduction to Cisco Packet Tracer (CPT)
- CPT: Requesting a Website
- Quiz: Layered Nature of Networks
- Anupam's Adventure
- From Anupam's Adventure to Network Addressing
- Addressing in Networks
- Deep Dive into IP addresses
- IPv4 to IPv6

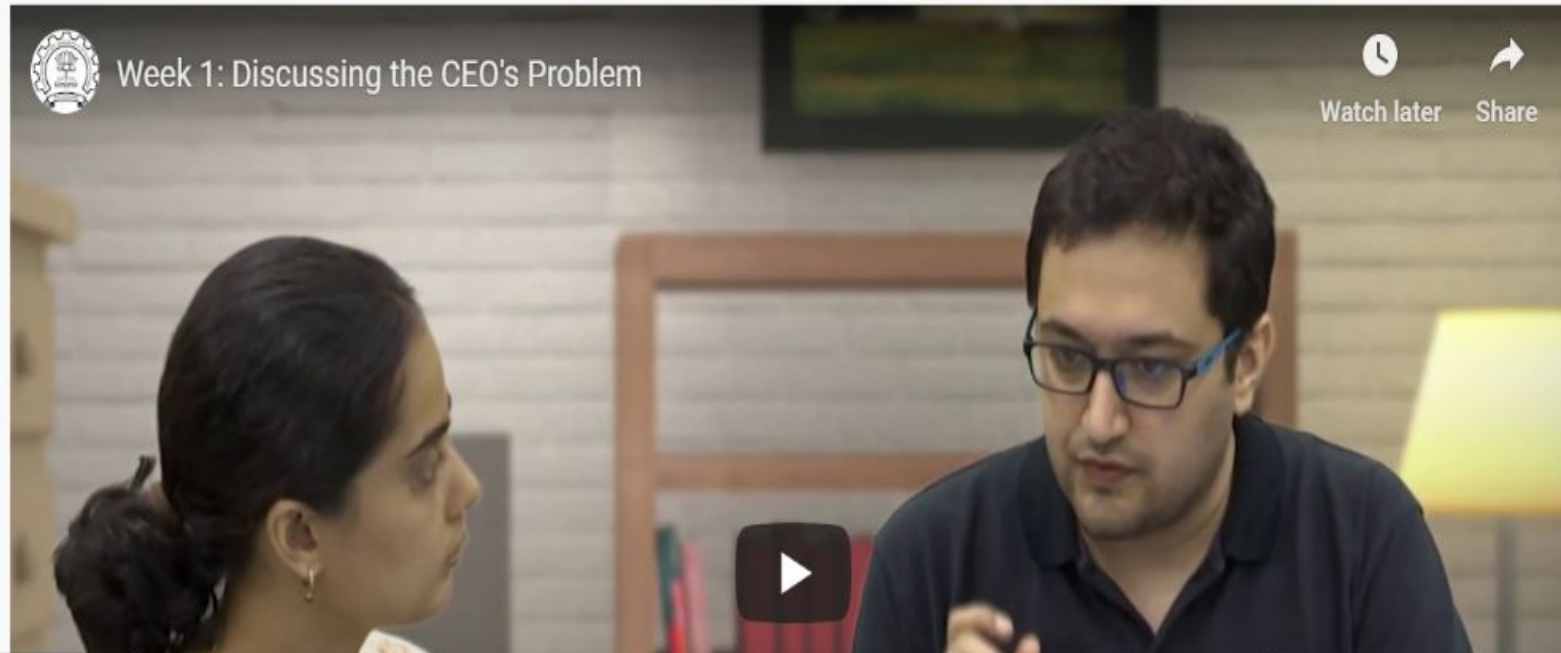
The CEO's Problem

Dear Learners,

Welcome to the first Learning Dialog of the course. This learning dialog comprises of two videos. Here we discuss how the CEO would have dealt with the delivering of the goods and later draw parallels between the analogy and the concepts of networking.

[Week 1: Discussing the CEO's Problem](#)

Click the above heading to watch video if you are not able to see the video



MOOC Providers

Provider	Institutional partners
Coursera	<u>Stanford University</u> , <u>Princeton University</u> , <u>Arizona State University</u> , <u>University of Maryland College Park</u> , <u>Ohio State University</u> , <u>University of Illinois at Urbana-Champaign</u> , <u>University of London</u>
edX	<u>MIT</u> , <u>Harvard University</u> , <u>Brown University</u> , <u>Boston University</u> , <u>UC Berkeley</u> , <u>Kyoto University</u> , <u>Australian National University</u> , <u>University of Adelaide</u> , <u>University of Queensland</u> , <u>IIT Bombay</u> , <u>IIM Bangalore</u> , <u>Dartmouth College</u> , <u>Universidad Autonoma de Madrid</u> , <u>Curtin University</u> , <u>Cornell University</u> , <u>Columbia University</u> , <u>University of Pennsylvania</u> , <u>University System of Maryland</u>
Udacity	<u>Georgia Institute of Technology</u> , <u>San Jose State University</u> , <u>Google</u> , <u>Salesforce.com</u> , <u>Facebook</u> , <u>Cloudera</u> , <u>Nvidia</u> , <u>Autodesk</u> , <u>Cadence</u> , <u>HubSpot</u> , <u>Tableau</u> <u>Strayer University</u>
Udemy	
NPTEL	<u>IIT Bombay</u> , <u>IIT Delhi</u> , <u>IIT Guwahati</u> , <u>IIT Kanpur</u> , <u>IIT Kharagpur</u> , <u>IIT Madras</u> and <u>Roorkee</u> , <u>Indian Institute of Science</u>
IITBombayX	<u>IIT Bombay</u>

How Does it Work?

iitbombay.in/courses?f%5B0%5D=domain%3A421



ABOUT

COURSES

HOW IT WORKS

Search:



Veenitashah

Courses

IITBombayX offers numerous interactive courses listed below, including ongoing, upcoming and archived courses. Each of these courses are categorized under EduMOOCs, LifeMOOCs, SkillMOOCs and TeachMOOCs for various learning needs.

Refine Your Search

Selected Filters: **Education & Teacher Training** **Reset All**

Domain

- Animation (7)
- Communication (17)
- Computer Science (23)
- Design Education (6)
- Education & Teacher Training (18)**
- Engineering (34)
- Finance (3)
- Skill development (11)

Programme

Course Search:

APPLY



FDP201x

Pedagogy for Online and Blended Teaching-Learning Process

Archived



FDP101x

Foundation Program in ICT for Education

Archived



ET621Tx

Effective teaching-learning of CS in Schools

Archived

How Does it Work?

This screenshot shows the Coursera interface for the course 'ICT in Primary Education: Transforming children's learning across the curriculum'. The header includes the Coursera logo, an 'Explore' dropdown, a search bar with the text 'What do you want to learn?', and a user profile for 'Gargi Banerjee'. The breadcrumb trail is 'Browse > Social Sciences > Education'. The course title is prominently displayed, followed by a 4.6 star rating from 58 ratings and 16 reviews. The course is offered by the University of London. A badge indicates it is 'Included with Coursera Plus' with a 'Learn More' link. An 'Enroll for Free' button is shown, starting on Dec 27, with a note that 'Financial aid available'. It states that 5,976 students are already enrolled. A navigation bar at the bottom contains links for 'About', 'Syllabus', 'Reviews', 'Instructors', 'Enrollment Options', and 'FAQ'.

This screenshot shows the Coursera interface for the course 'Foundations of Teaching for Learning: Introduction'. The header is identical to the first screenshot, including the Coursera logo, 'Explore' dropdown, search bar, and user profile. The breadcrumb trail is 'Browse > Social Sciences > Education'. The course title is displayed, followed by a 4.6 star rating from 515 ratings and 158 reviews. The course is offered by the Commonwealth Education Trust. A badge indicates it is 'Included with Coursera Plus' with a 'Learn More' link. An 'Enroll for Free' button is shown, starting on Dec 27, with a note that 'Financial aid available'. It states that 45,421 students are already enrolled. A navigation bar at the bottom contains links for 'About', 'Syllabus', 'Reviews', 'Instructors', 'Enrollment Options', and 'FAQ'.



Summarize : Characteristics of a MOOC

Hint: Use these stems to frame your response

- MOOC contains _____
- MOOC provides (benefits) _____

Summarize : Characteristics of a MOOC



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Your Responses:

- MOOC contains _____
- MOOC provides (benefits) _____

Characteristics of a MOOC

- MOOC contains _ Content organized into courses
 - Instant assessment
 - Diverse learner population
 - Discussion forums & Interactive sessions
- MOOC provides (benefits) __ Quality online education at scale
 - Exposure to diversity of opinions/solutions
 - Flexibility for the learner (anytime, anywhere)
 - Learning free of cost (mostly)
 - Certificate on completion (recognized by institutions/employers)

What is a MOOC?

Massive Open Online Courses

- Technology platforms to support scale.
- Existing platforms – Swayam -NPTEL, IITBombayX, edX, Coursera, Futurelearn.
- Provide access to information anytime, anywhere.
- Instructor provides content in the form of videos, slides.
- Learners access content and do assessments – graded & ungraded.
- Certificate on completion.

Evolution of MOOCs



Source: MOOC on Designing Learner-centric MOOC

Statistics and Trends in MOOC

Class-central: Reviews of statistics and trends in MOOCs every year.

[Review of 2012](#)

[Review of 2013](#)

[Review of 2014](#)

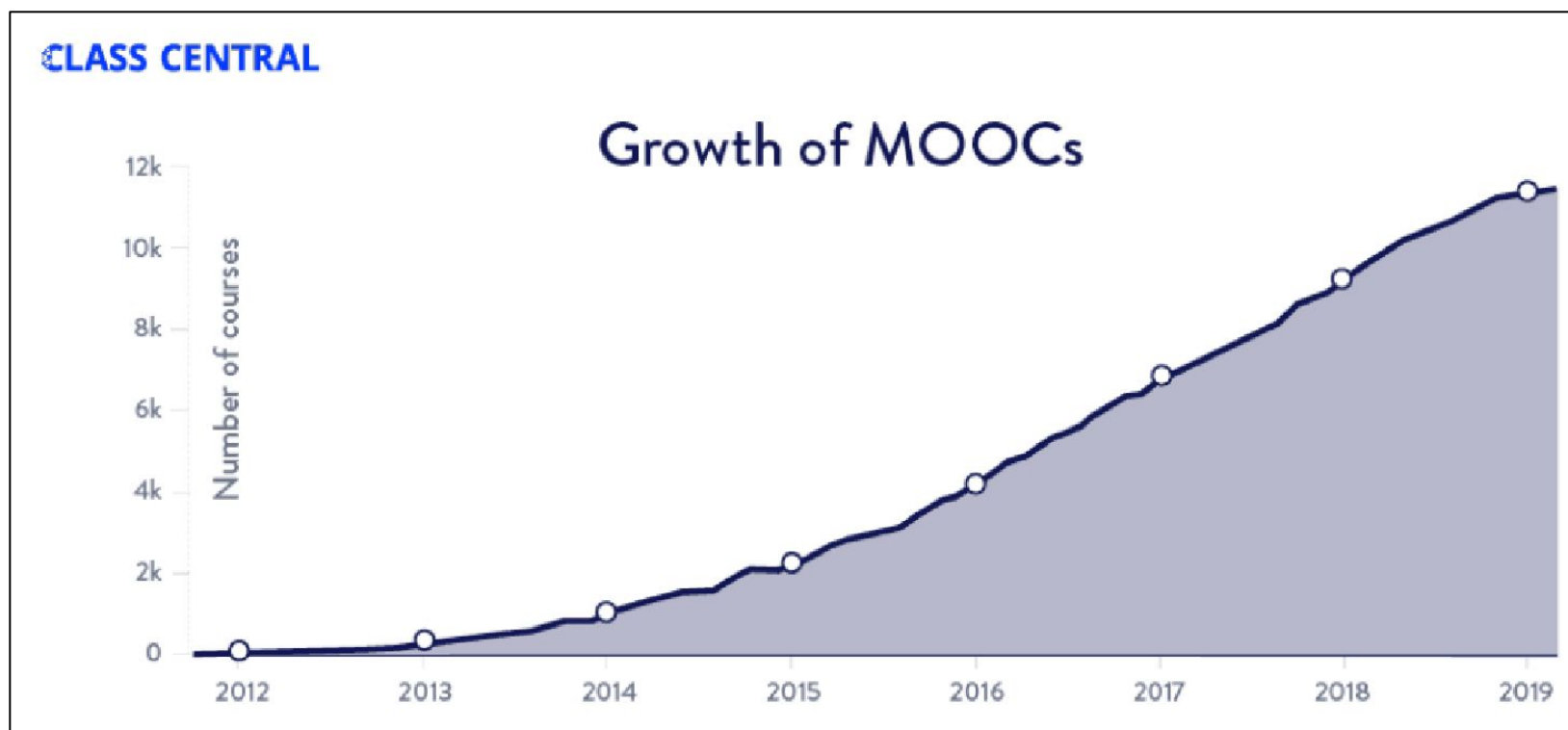
[Review of 2015](#)

[Review of 2016](#)

[Review of 2017](#)

[Review of 2018](#)

[Review of 2019](#)





Why do I need MOOCs?

How will MOOCs benefit me as a teacher?



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Benefit of MOOC for teachers

Teacher Professional Development

Upgrade your knowledge base

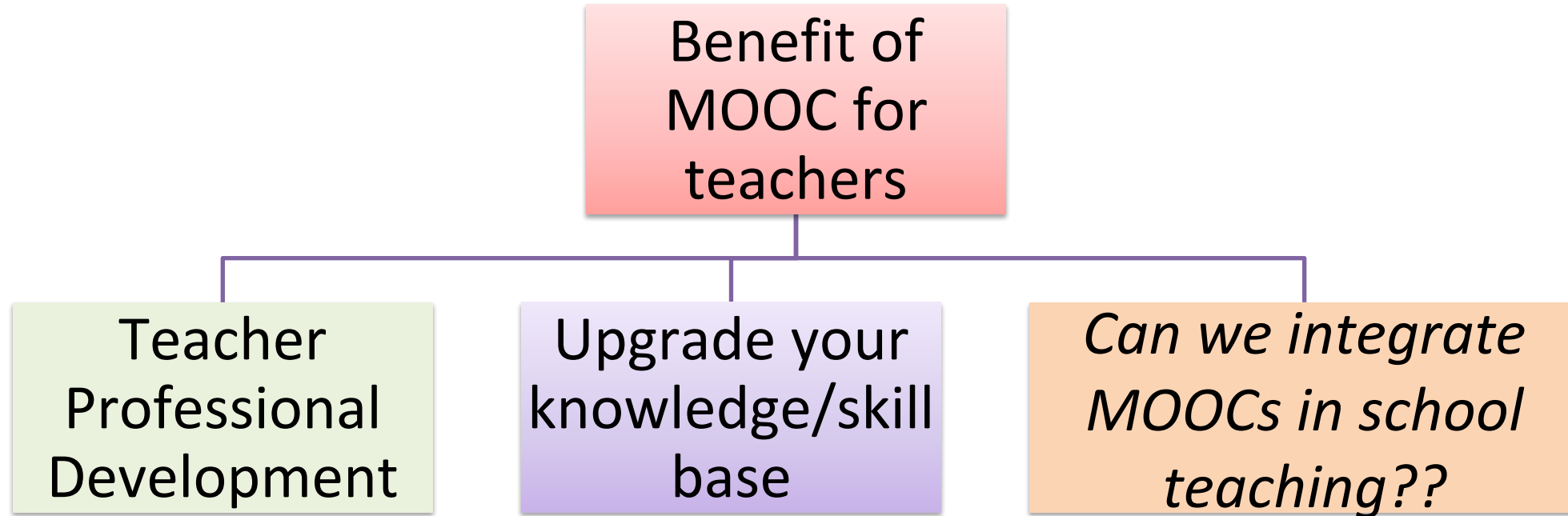
The screenshot shows the Coursera interface for the course 'Foundations of Teaching for Learning: Introduction'. It includes the Coursera logo, a search bar, and navigation links for 'Social Sciences' and 'Education'. The course title is prominently displayed, along with a 4.6 star rating based on 515 ratings and 158 reviews.

A grid of six MOOC course cards. The top row includes 'Communication Skills' (HS791x, Archived, Starts: Jul 29, 2019), 'Workplace Communication' (C2CWC1x, Archived, Starts: Apr 02, 2019), and 'Soft Skills' (C2CSS1x, Archived, Starts: Mar 01, 2019). The bottom row includes 'Communication Skills' (HS791x), 'English for Oral Communication' (ENG101x), and 'Soft Skills' (C2CSS1xA18).

How will MOOCs benefit me as a teacher?



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How can we integrate MOOCs in school teaching?



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- Think (Individual activity – 2 mins.)

Decide the instructional setting (classroom/laboratory/homework) in which you would use MOOCs as a teaching aid.

How can we integrate MOOCs in school teaching?



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- Think (**Individual activity – 2 mins.**)

Decide the instructional setting (classroom/laboratory/homework) in which you would use MOOCs as a teaching aid.

- Pair (**Group activity – 5 mins.**)
 - Get a partner who has chosen the same setting.
 - Discuss & come up with a single idea of how you will use MOOC as a teaching aid.

How can we integrate MOOCs in school teaching?



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- Think (**Individual activity**)

Decide the instructional setting (classroom/laboratory/homework) in which you would use MOOCs as a teaching aid?

- Pair (**Group activity**)
 - Get a partner who has chosen the same setting.
 - Discuss & come up with a single idea of how you will use MOOC as a teaching aid.

- Share :

Share with all workshop participants

How can we integrate MOOCs in school teaching?



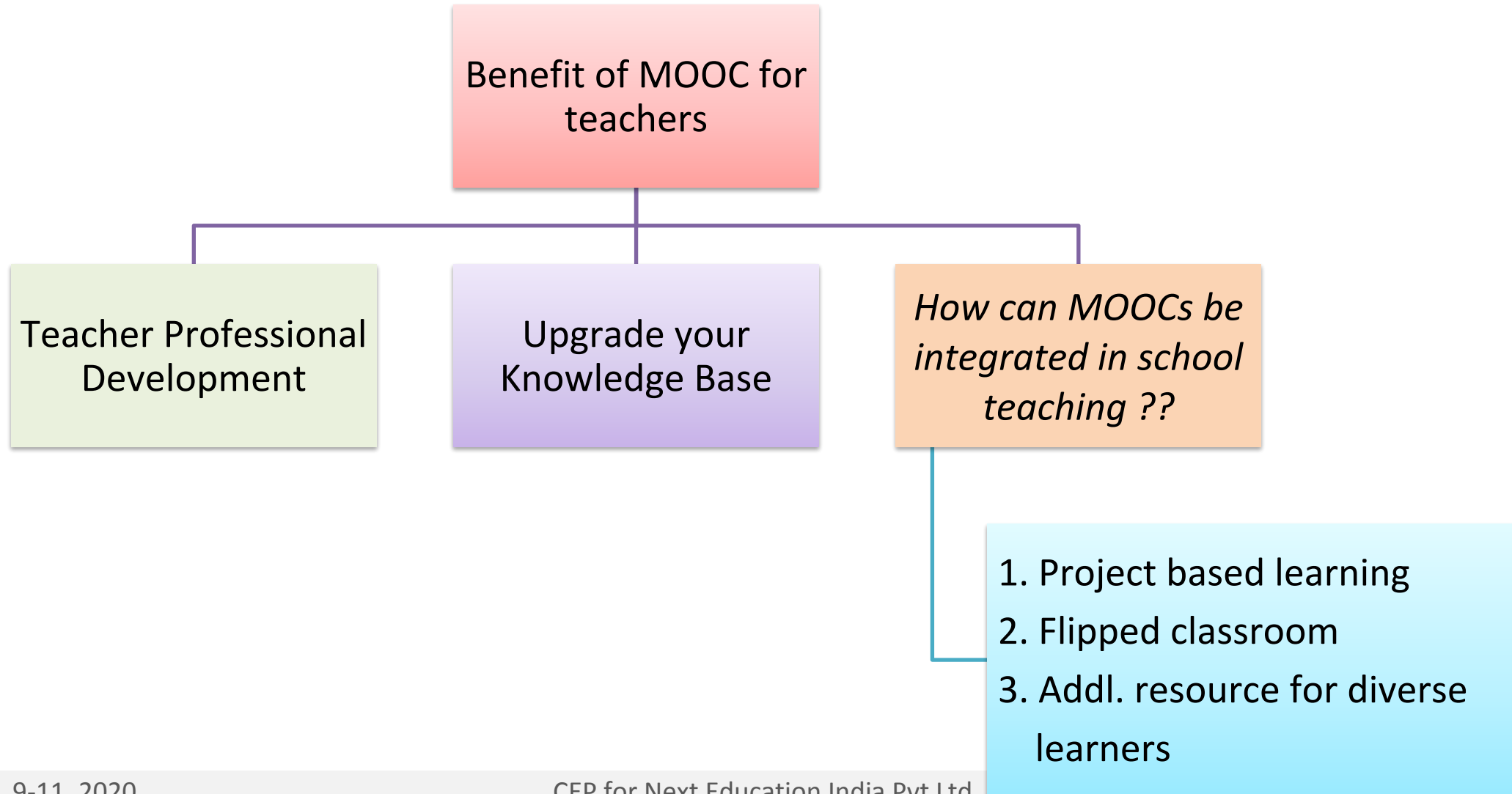
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- Your Responses :

Can MOOCs be integrated in school teaching?



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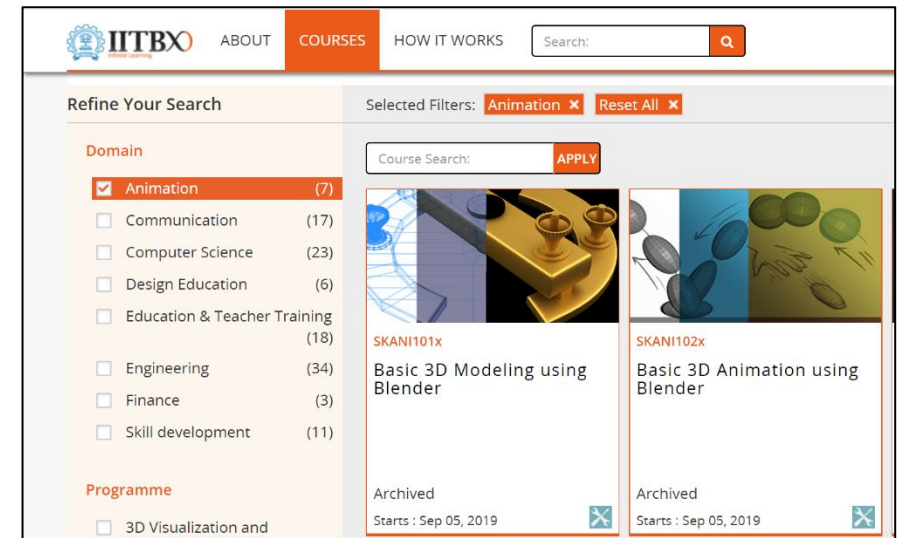


Teaching-learning Strategies with MOOCs



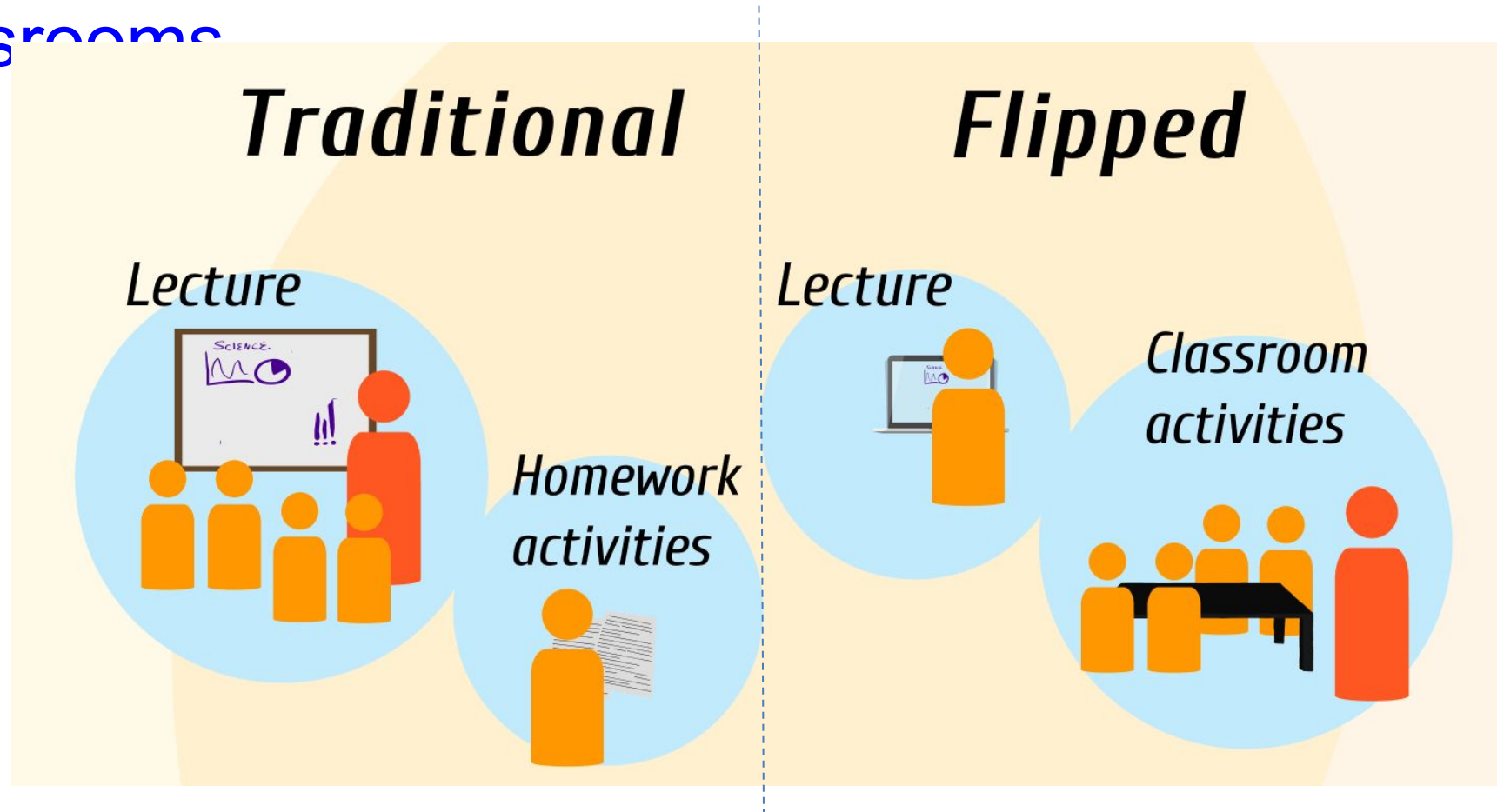
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A. Use in Project Based Learning



Teaching-learning Strategies with MOOCs

B. Use in flipped classrooms





Teaching-learning Strategies with MOOCs

C. Additional learning resource for diverse learners

The screenshot displays the Swayam MOOCs website interface. At the top, there is a navigation bar with the Swayam logo on the left and links for 'About Swayam', 'All Courses', 'National Coordinators', and 'Local Chapters' on the right. Below the navigation bar, there is a search bar labeled 'Search Catalog...' and a 'SIGN-IN / REGISTER' button. The main content area is divided into two sections: 'Upcoming (Enrollment Open)' and 'Ongoing (Enrollment Closed)'. The 'Upcoming' section is currently active and displays a grid of course cards. Each card includes a course title, the instructor's name, the institution (DESS, NCERT, New Delhi), the NCERT logo, the course duration (24 Weeks), the start date (01-10-2019), the exam date (1 Mar, 2020), and the enrollment end date (31 Dec, 2019). The visible course cards are: Accountancy XI Part-I (Prof. Shipra Vaidya), Biology XI Part-I (Dr. Sunita Farkya), Biology XI Part-II (Dr. Sunita Farkya), Biology XII Part-I, Business Studies XII Part-I, and Chemistry XI Part-I. On the left side of the interface, there is a 'FILTERS' section with dropdown menus for 'National Coordinator', 'Course Duration', 'Course Exam Date', and 'Course Credits', all currently set to 'All'. Below the filters is a 'CATEGORY' section with a dropdown menu for 'School'.



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But Do Teacher Training Through MOOCs have Impact?



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IIT Bombay – NextEducation Teacher Training MOOCs

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Course Data (2017-2018)

- 4-week courses
- Partially sponsored by NextEducation

Instructors : IITB faculty & Research Scientists

Each course ran 3 times

- Participants : school teachers across India & Tanzania, Middle East, UK



Pedagogy for effective use of ICT for school teachers

Course	Total Teachers Certified
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ET611Tx	2,815
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ET621Tx	656
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ET621Tx
Schools

IITBombayX - ET621Tx
Ended - Oct 7, 2018



View Archived Course

Overview of ET611Tx MOOC



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Course Structure

- Platform primer (Pre-course activity)
- Technology & Pedagogy primer
- Active learning & classroom strategies
- Effective integration of visualizations in classrooms
- Putting it all together

Learner-centric MOOC (LCM) model



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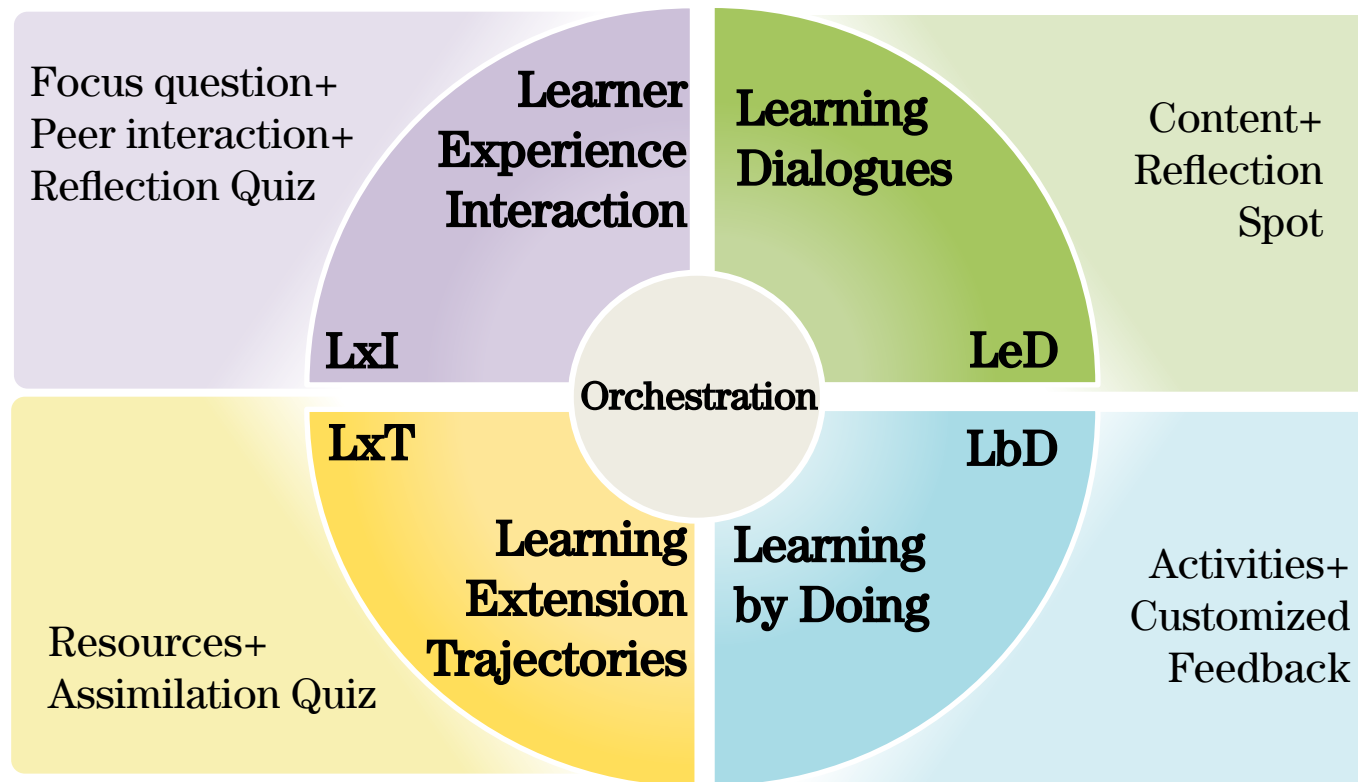
LCM MOOC

LeDs : Short interactive videos with in-video activities

LbDs: Formative assessment activities for micro-practice after each concept with constructive/customized feedback

LxTs: Varied learning resources to address diversity followed by a graded quiz

LxIs: Explicit activities with focus questions to foster peer-learning followed by a graded quiz

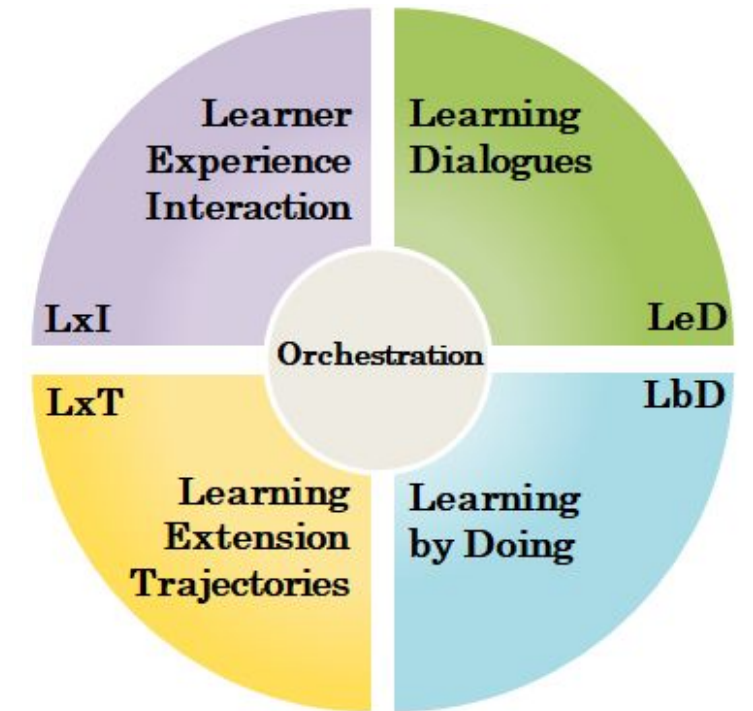


LCM MOOC Model

ET MOOCs: Catering to Diverse Skill Sets

Effective use of ICT in classroom (IIT BombayX)
Effective classroom teaching strategies (IIT BombayX)

		
ET611Tx Pedagogy for effective use of ICT for school teachers Archived Starts : Jul 12, 2018	ET601Tx Educational Technology for Engineering Teachers Archived Starts : Jan 05, 2016	ET621Tx Effective teaching-learning of CS in Schools Archived Starts : Sep 06, 2018



LCM model

Providers: IIT BombayX & NPTEL

ET611Tx MOOC : Experience Sharing



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Think-Pair-Share

<https://www.youtube.com/watch?v=vJWIAIhM3so&feature=youtu.be>

e

0 2:27 – 4:45 – 5:03 -8:49

Peer Instruction

<https://www.youtube.com/watch?v=DXW8qgXne8o&feature=youtu.be>

Innovations by teachers (voice chart), (voizometer)

Active Learning Strategies from ET611Tx MOOC by IITBombayX.in

Voice Levels	ध्वनि स्तर
0 Silence is Golden Absolute silence. No one is talking.	0 मौन स्वर्णिम है पूर्ण मौन। कोई भी बात ना करें।
1 Spy Talk Whispering. Only 1 person can hear you.	9 जासूस मोड फुराफुराना। केवल एक व्यक्ति सुन सकता है।
2 Low Flow Small group work. Only the group can hear	2 हलके हलके छोटे समूह में काम के लिए। केवल आपका समूह सुन सकता है।
3 Formal Normal Normal conversation voice. Presenting voice.	3 आम काम सामान्य बातचीत का ध्वनि स्तर। प्रस्तुत करने का ध्वनि स्तर।
4 Out of Control Playground voice. Never used inside.	8 अनियंत्रित खेल मैदान का ध्वनि स्तर। भवन के अन्दर कभी भी ना करें।

7:00 / 8:12 [Scroll for details](#)

Chitra Kapoor Rola Good morning ET611Tx team , here is the picture of Voizometer that has been used in class to control the noise level . Arrow shows the level as green signifies peaceful class, yellow- little noisy and red- very noisy class. This is placed near the switch board as the class become noisy I mark the arrow to red and switch off the fans & light . Children immediately understand why is that happen , what teacher is expecting and how to bring the level back to green .



ET611Tx MOOC : Teacher Testimonial



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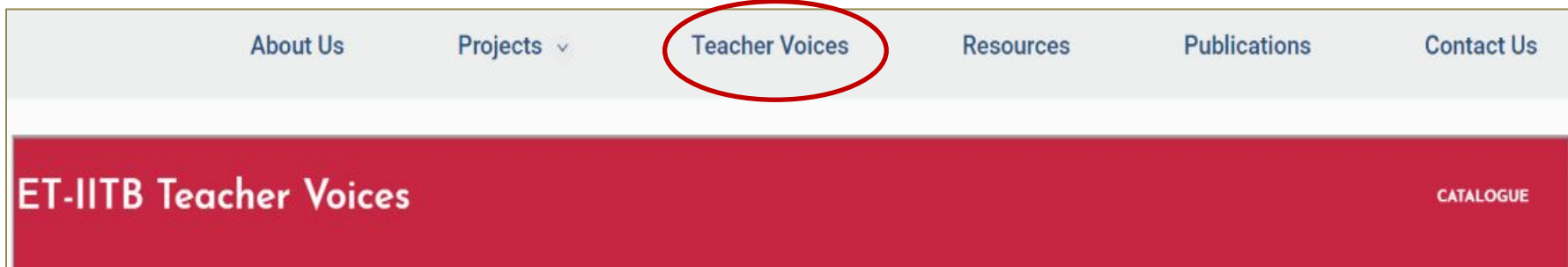
I am teaching Biology to the Higher Secondary Classes since last 17 years..... When I was teaching, the whole class was always calm and cool. I used to ask few questions to the students and also clear the doubts of the students. Students were satisfied with my teaching and also appreciated me many times. I was getting job satisfaction. In fact this was not the real story

When I joined the course and completed the Module-2 i.e. Active Learning and Classroom Strategies, I found myself awakened from the dark night and said that "I have to work hard for students till the next 17 years". Past 17 years my teaching was Teacher Centric, which was wrongly appreciated by my students. **For the last 17 years students were listening to me, now for the next 17 years I have to listen to the students. Now on wards my each class will be noisy and found to be engaged.**

[atul1975](#)



Contribute to Teacher Voices




Send stories of learner-centred teaching-learning from your school : nexteducationlab@gmail.com




ET MOOCs: Catering to Diverse Skill Sets

Effective Design of MOOCs (IIT BombayX + NPTEL)
 Learner-centric Design of E-content (NPTEL)



ET701x
 Elements of Learner-Centric MOOCs

Archived
 Starts : May 03, 2018




Designing Learner-Centric MOOCs
 Prof. Sridhar Iyer, Prof. Sahana Murthy, Dr. Jayakrishnan...

IIT Bombay



NPTEL
 4 Weeks (Starts: 29-07-2019)
 Exam Date: 29 Sept, 2019

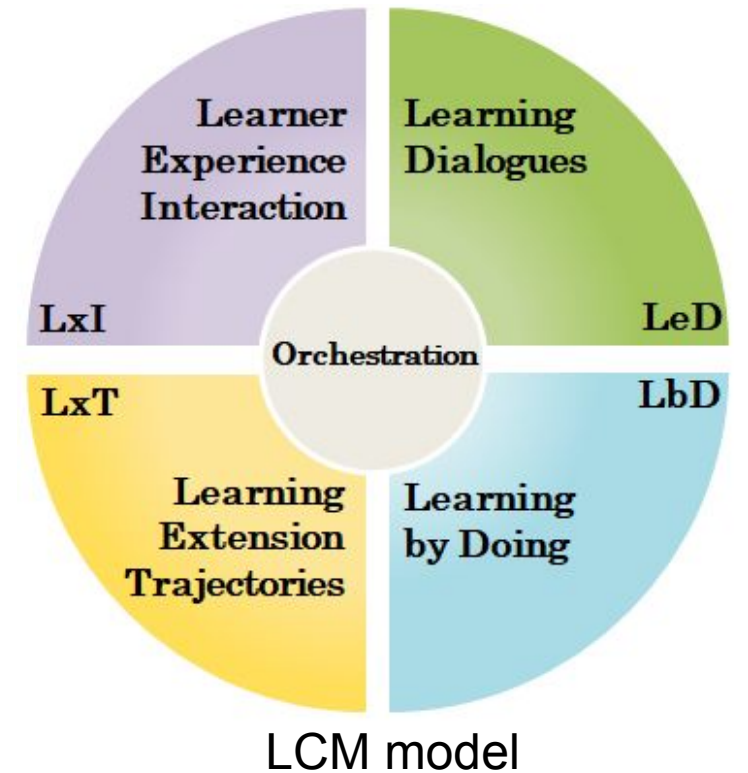


Designing learner-centric e-learning in STEM...
 Prof. Sahana Murthy

IIT Bombay



NPTEL
 4 Weeks (Starts: 29-07-2019)
 Exam Date: 29 Sept, 2019



Providers: IIT BombayX & NPTEL



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