https://mhrd.gov.in/ict-initiatives http://new.nmeict.ac.in/

Professor

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Punjabi University, Patiala

vishal.pup@gmail.com

#### **National Mission on Education**

Through ICT (NMEICT)

an initiative of

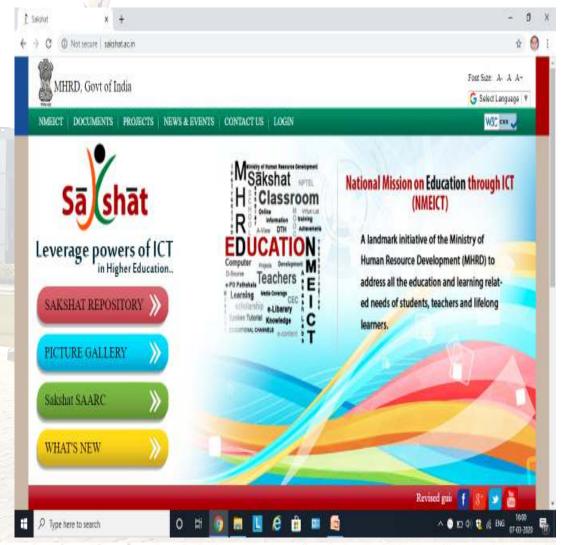
Ministry

Human Resources Development, Government of India

**AN INITIATIVE** OF Ministry of HRD, Govt. Of India, New Delhi FOR TECHNOLOGY **ENABLED LEARNING** https://mhrd.gov.in/ict-initiatives

#### (http://new.nmeict.ac.in/)

- National Mission on Education through ICT (NMEICT) is a landmark initiative of the Ministry of Human Resource Development (MHRD) to address all the education and learning related needs of students, teachers and lifelong learners.
- In Indian scenario where there is a vast disparity of educational facilities available in various regions across the country, the Mission envisages to bridge the gap by providing just- in- time quality educational resources and teachers 24×7 to learners irrespective of their social, economic and educational status.



(http://new.nmeict.ac.in/)

 National Mission on Education through Information and Communication Technology (NMEICT) is an ambitious project undertaken by the Ministry of Human Resource Development (MHRD), Government of India with a view to seamlessly providing quality educational content to all the eligible and willing learners in India. It has envisaged content and connectivity as the twin pedals for initiating and accelerating ICT-enabled Higher Education.

#### (http://new.nmeict.ac.in/)

- The National Mission on Education through ICT (NMEICT) was launched on February 3, 2009 at Tirupati, Andhra Pradesh as a Centrally Sponsored Scheme to leverage the potential of ICT in teaching and learning process.
- The mission of the project is to have an ambitious vision of catering to the learning needs of more than 50 crore Indians (working population) and of providing a one stop solution to all the requirements of the learning community.

(http://new.nmeict.ac.in/)

The three cardinal principles of the Education Policy viz., access, equity and quality are to be served through three major components of the mission:

- 1. Broadband connectivity to all colleges and universities
- 2. Low cost access &computing devices for students and teachers.
- 3. High quality e-content generation.

http://new.nmeict.ac.in/

- Interactive Multimedia Content
- High Speed Connectivity
- Low Cost Access Devices
- DTH Educational Channels

(http://new.nmeict.ac.in/)

There are three guiding philosophies for this effort —

[a] no talent of the country should be allowed to go waste,

[b] all the services available through the content delivery portal Sakshat should be free and

[c] freely available material on the web should be used so as to avoid reinventing the wheel.

## Objectives of the Mission

- Empowering and enabling students by ensuring equity and access to education through the use of ICT;
- Connecting over 400 Universities and 22,000 Colleges all over India through high-speed data networks;
- Improving faculty quality by using a unique synchronous training methodology;
- Ensuring equity by providing access to expensive equipment to students even in remote corners through innovative use of ICT; and
- Making available e-content and educational videos created by the best teachers across all disciplines for UG and PG classes.

## **Objectives of the Mission**

- The Mission provides an opportunity for all the teachers and experts in the country to pool their collective wisdom for the benefit of every Indian learner and, thereby, reducing the digital divide and reaching out hitherto deprived sections of the society in rural/ under-developed areas of the country.
- Under this Mission, a proper balance between content generation, research in critical areas relating to imparting of education and connectivity for integrating our knowledge with the advancements in other countries is being attempted.
- It is an endeavor through which MHRD is synergising the efforts taken by the educational institutions vis. IITs, UGC, NITs, CEC, IGNOU and other higher education institutions in the country to develop world class content and educational applications.
- Senior faculty members from different universities, research institutes and institutions of higher learning are contributing to the development of e-learning resources, virtual labs, open source applications etc.

## SAKSHAT (http://sakshat.ac.in/)



## **Sakshat - Introduction**

- SAKSHAT is envisaged as one stop education portal to facilitate lifelong learning of the students, teachers and those in employments or in pursuit of knowledge free of cost to them.
- The portal is expected to be the main delivery platform for the contents developed under the National Mission on Education through ICT (NMEICT).
- Sakshat integrates all the contents developed under the Mission and also provides Mission related information and to facilitate public scrutiny, feedback and transparency for the projects undertaken by the Mission.
- There are more than hundred forty projects ongoing under the NMEICT ranging from e-content development, access to eresources, development of software tools etc.
- To know more about these projects visit the Sakshat website at http://www.sakshat.ac.in.

## Sakshat - Projects



PROME HAMBOT | DOCUMENTS | PROMETS | NEWS A EVENTS | CONTACT US

MHRD Goot of India.

Ongoing Projects

Content Country (Non-Technical) Country continuing the area of Economic, Mathematics,

Emmera States, Zoology, and Strany

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## Ongoing Projects

## Completed\_Projects



## NMEICT- Implementation Guidelines/Procedures for Processing of Project Proposals

http://www.sakshat.ac.in/Document/NMEICT-process-flow.docx

- Eligibility of Institutions: Central/State Government Institutions/Research Institutions/ Renowned Institutions in a specific field (public/private), renowned NGOs, any organization set up by an expert or any other institute approved by the Apex Committee (MD-10).
- Procedures:
  - Submission of Proposals login to SAKSHAT portal, upload the
     Detailed Project Report (DPR)in the specific category
  - Screening of Proposals
  - Domain Experts Committees(DECs) recommendation(s) of proposals
  - Project Approval Board (PAB)
  - Sanction of Projects and release of funds
  - Project Review and Supervision

The Mission document shall stand as final instrument and the guiding factor in all above cases.

## Sakshat – e-Content Components





HOME

ICT DOCUMENTS

PROJECTS

**NEWS & EVENTS** 

CONTACT US









#### List of Sakshat e-Content Repositories

#### **CEC e-Content**



CEC e-Content



**Spoken Tutorial** 

#### e-PG Pathshala



e-PG Pathshala



Talk To a Teacher

#### **NPTEL Engg. Media Content**



NPTEL Engg. Media Content



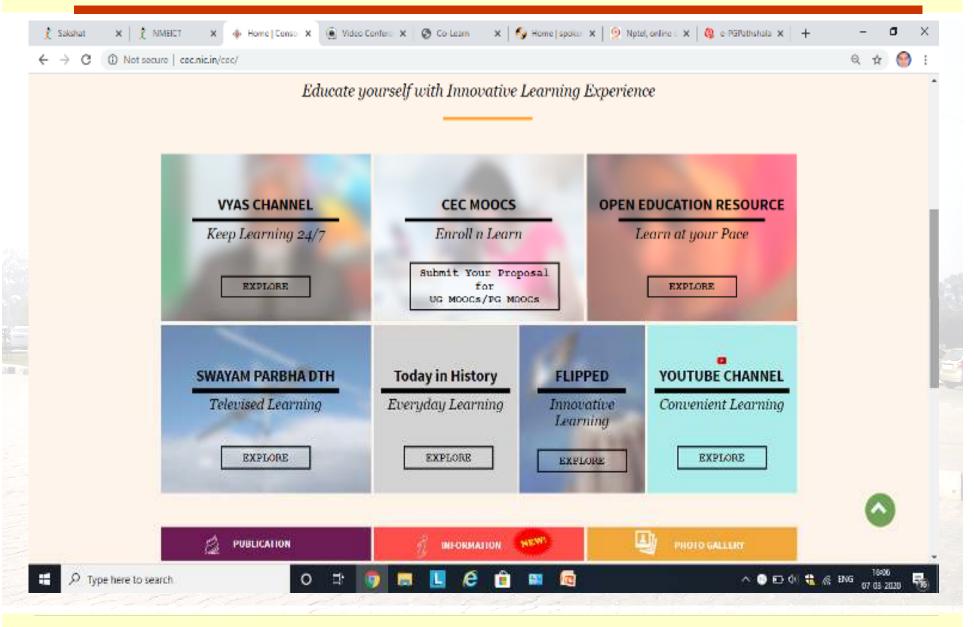
A-View Virtual Classrooms

#### Talk to a Teacher

#### **A-View Virtual Classroom**

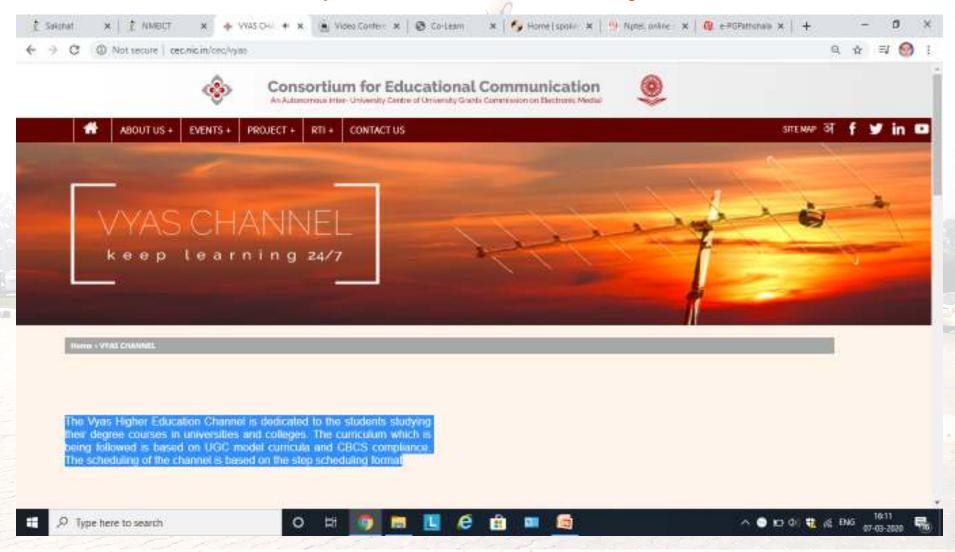


#### CEC Website Screenshot (http://cec.nic.in)



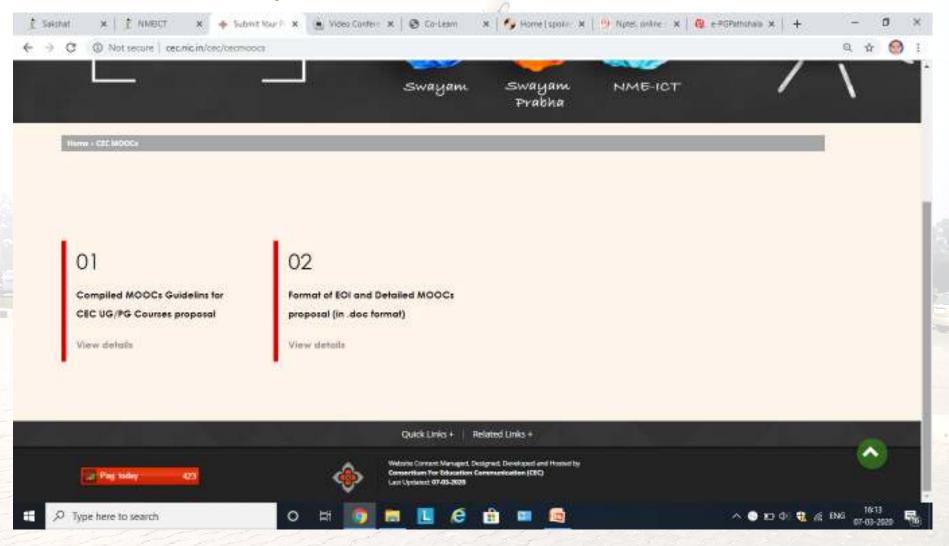
## **CEC Vyas Channel**

http://cec.nic.in/cec/vyas



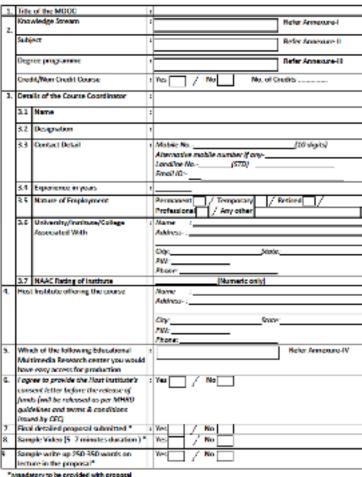
## **CEC MOOCs**

#### http://cec.nic.in/cec/cecmoocs



## **CEC MOOCs Plan**

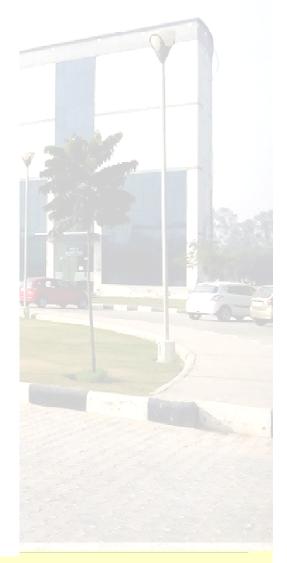
A. Proforms for inviting Expression of Interest for Developing MOOCs (Please mad the instructional manual before filling the form and submit at cerumocomposal/Pamail.com for UG Courses & cerupemoco/Pemail.com for PG Courses)



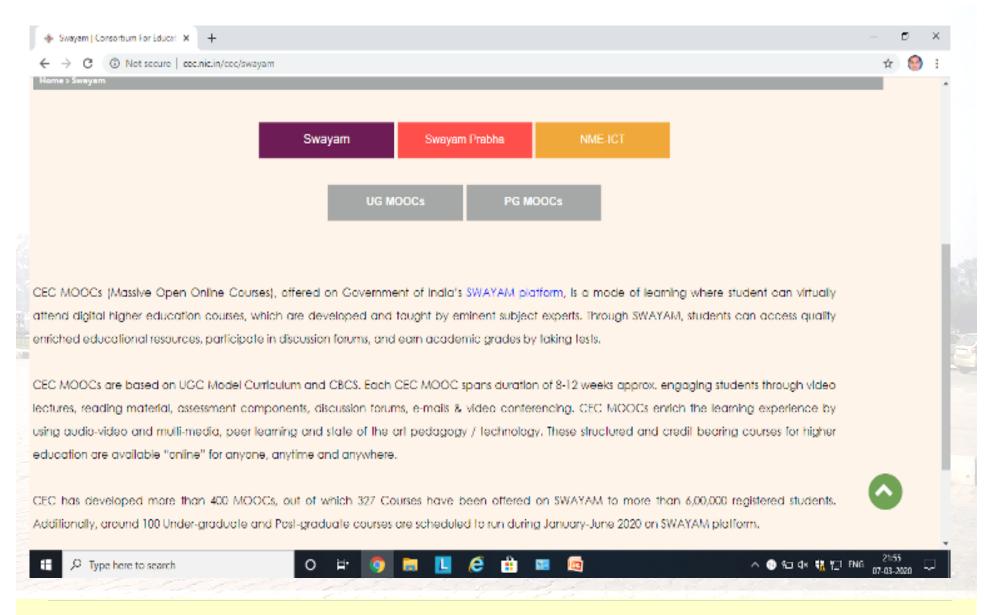


The Courte Coordinator may kindly ascertain before uploading the form that they have a Host University/ institute as per the MOCC guidelines from MHRD.

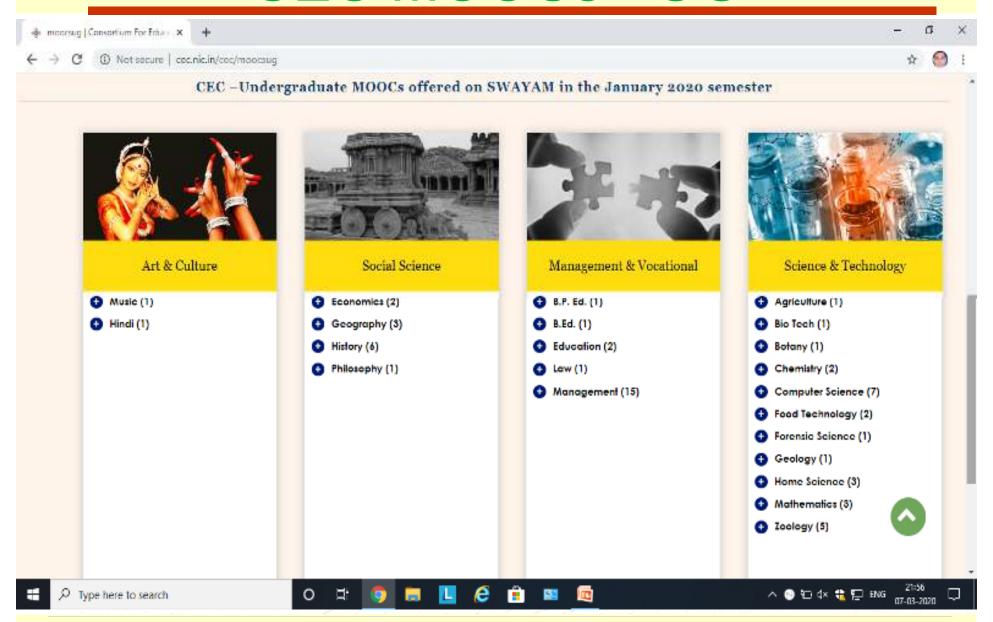
The acceptance of the course shall be in accordance to the MHRO/ UGC /CEC guidelines in force



## **CEC MOOCs**



## CEC MOOCs - UG



Q

#### Consortium for Educational Communication

Home

Events

NME-ICT Project

EDUSAT

RTI

Related Links

Home > E-Content > E-Content Search

# Managant Culture Ma 4 hematics

Subject

Applied Physics....(225)

Applied Filysica.....(222

More Subjects

All Papers

Paper01

Fundamentals of....

Paper02 Mechanics

- Management

Paper03

Computational S....

Paper04

Analog Circuits....

Paper05

Data Structures....

show more \*

Subject :

Applied Physical Sciences (Computer Science and Electronics) (B.Sc.)

Paper Name :

**Database Management Systems** 

Paper No:

11

17

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19

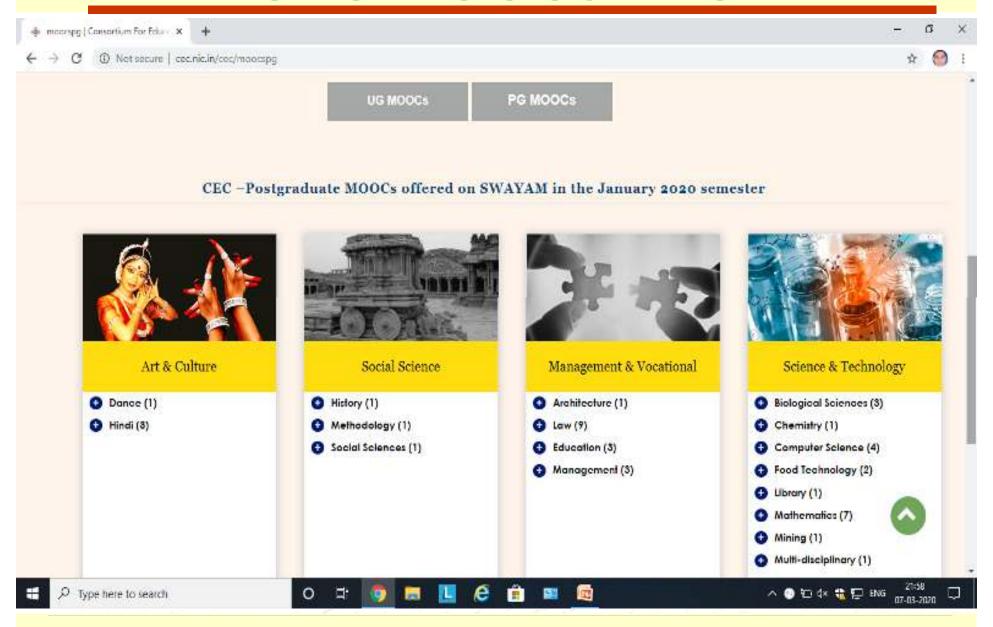
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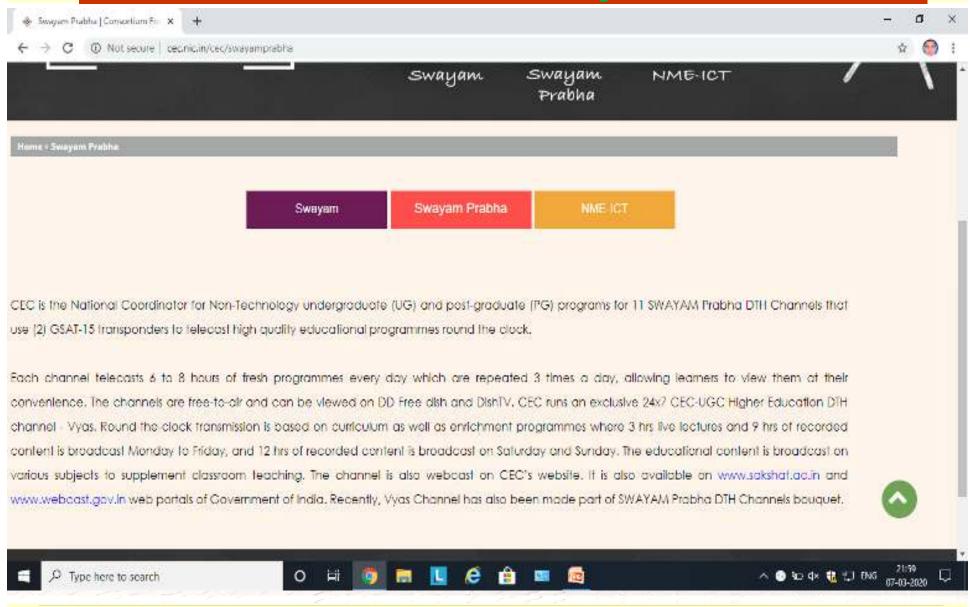
Paper12

No	Lecture Title	Subject Expert	
1	Introduction to Databases	Dr. Vishal Goyal	21 Views
2	File System Approach and DBMS Approach	Dr. Vishal Goyal	22 Views
3	Data Models	Dr. Vishal Goyal	12 Views
4	DBMS Architecture	Dr. Vishal Goyal	22 Views
5	E-R Model, E-R Diagram and its Components	Dr. Vishal Goyal	12 Views
			4846

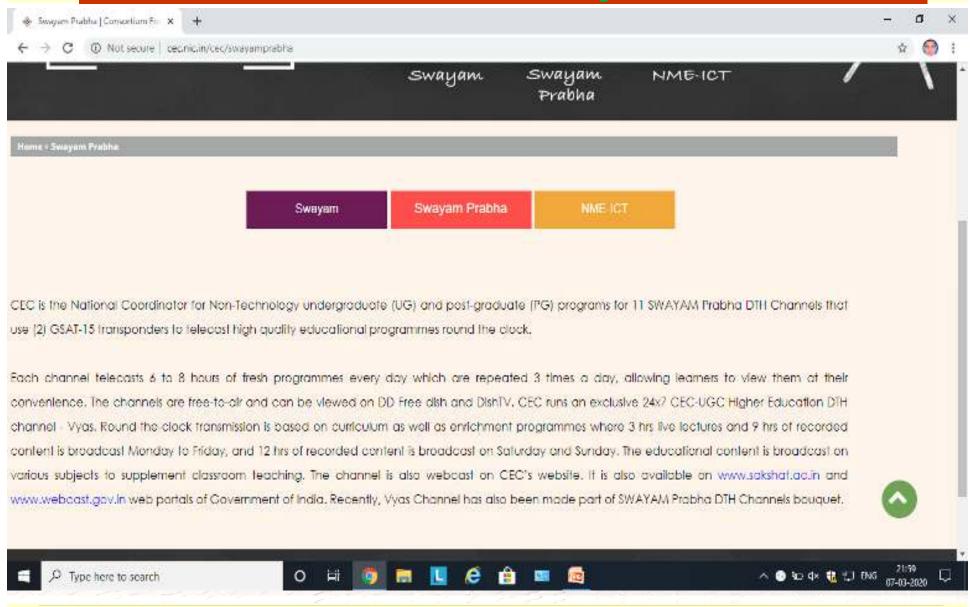
## CEC MOOCs - PG



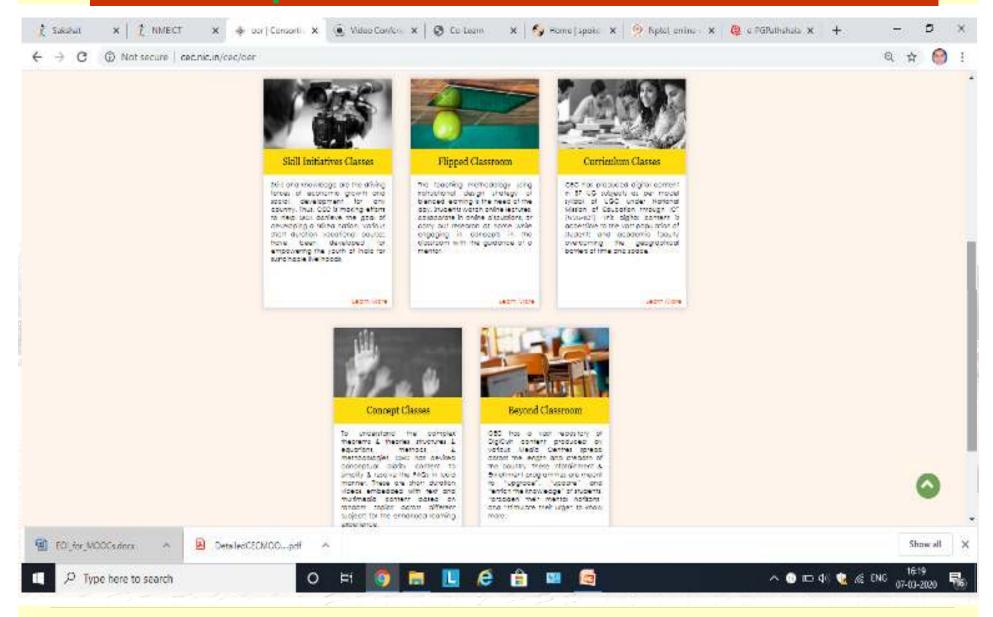
# CEC MOOCs - SwayamPrabha



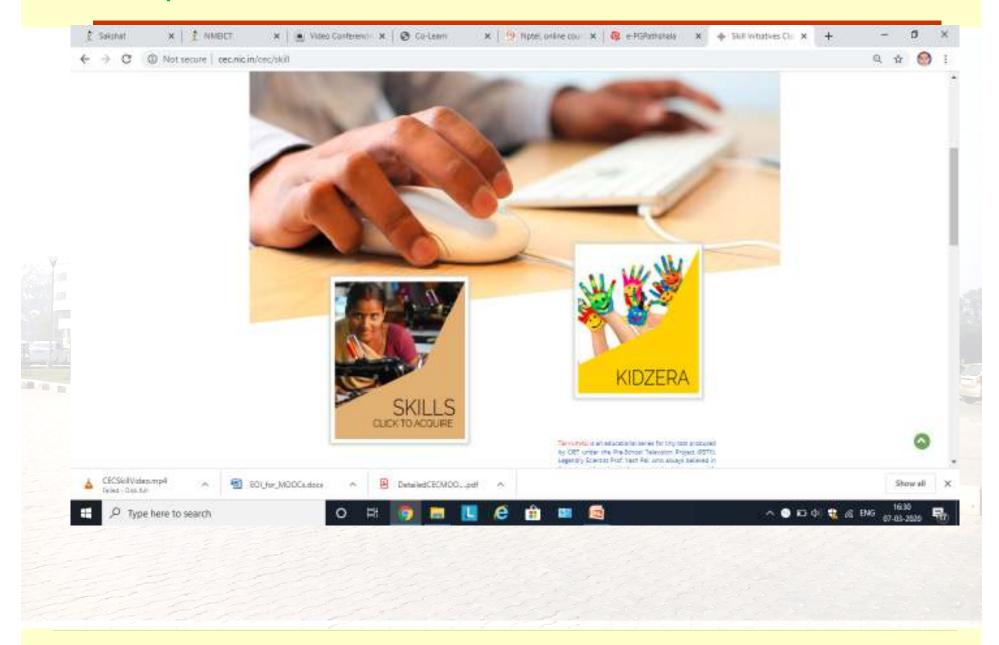
# CEC MOOCs - SwayamPrabha



# CEC Open Education Resource

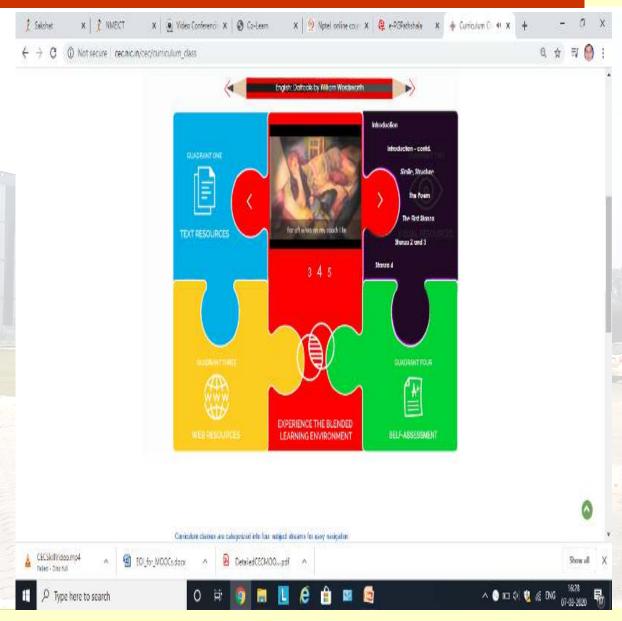


#### CEC Open Education Resource- Skill Initiative Classes



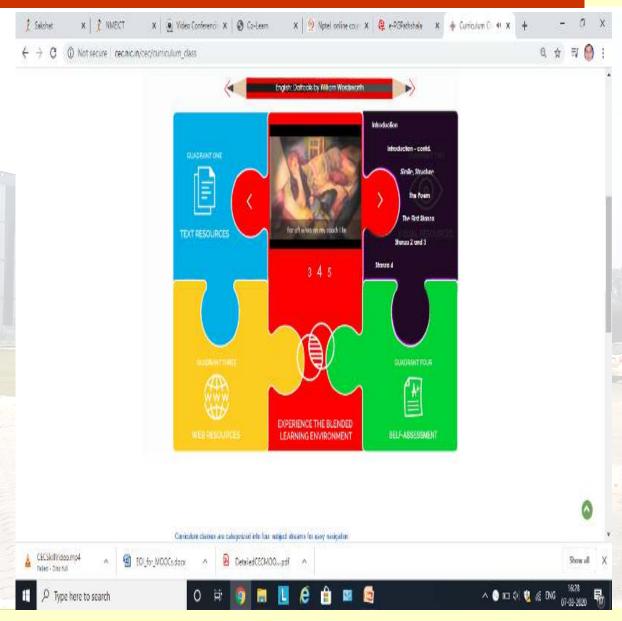
#### CEC Open Education Resource- Curriculum Classes

Curriculum classes are being designed in tune with contemporary approach of learning behaviour to ensure maximum learning outcome. The taxonomy which is being used for suitable placement of the content is a fine blend of digital educational material four quadrants. segregation is based on the nature of the content i.e. text resources, visual resources etc. A unique initiative of Blended Learning by CEC will certainly facilitate the learner to attain knowledge.

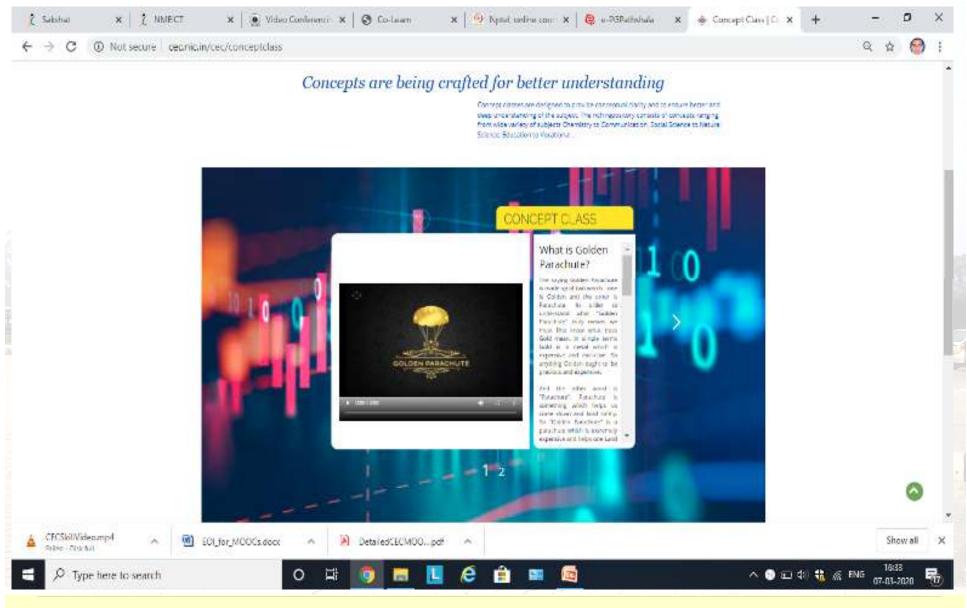


#### CEC Open Education Resource- Curriculum Classes

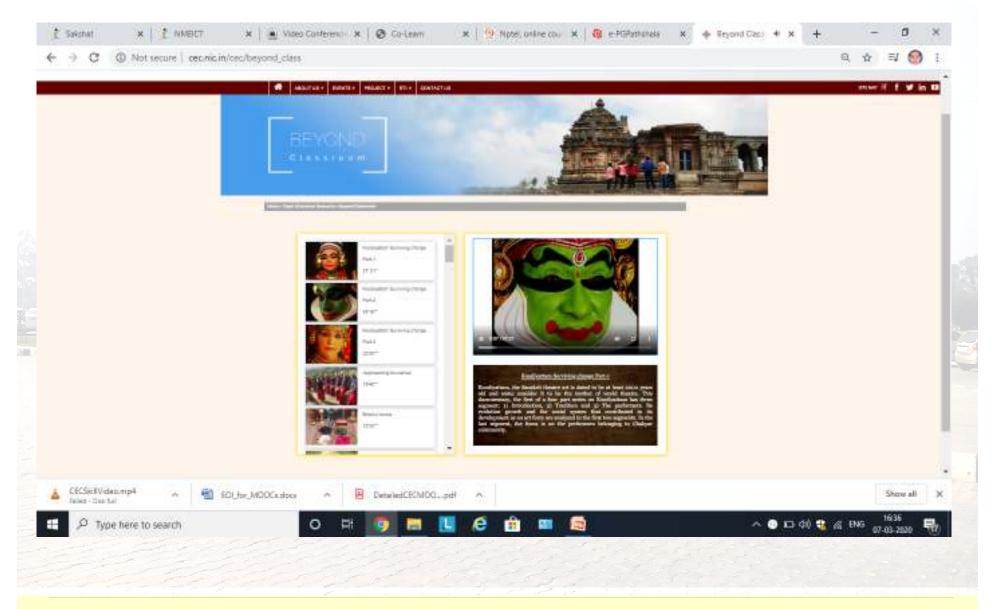
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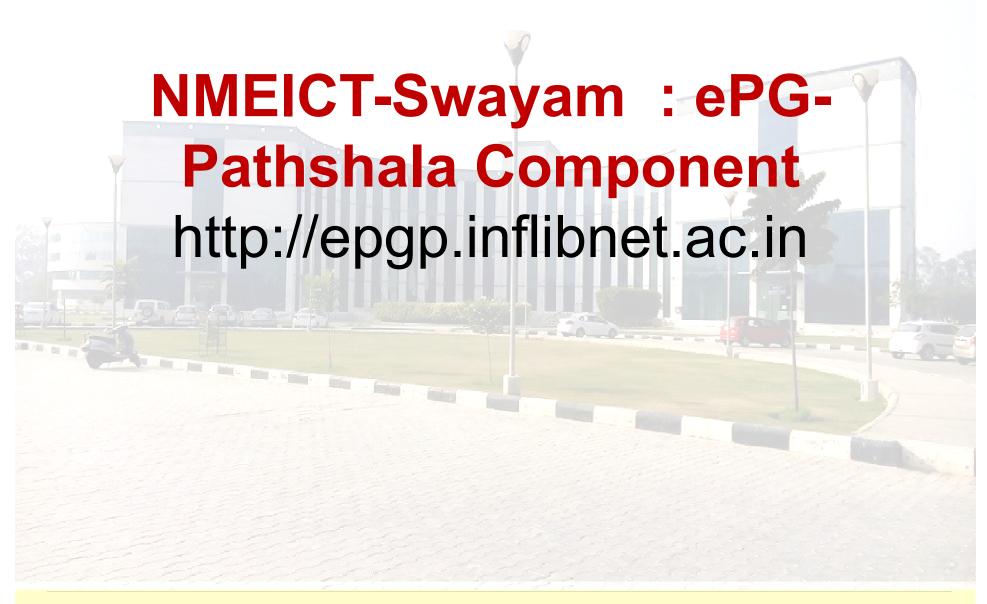


## **CEC-OER-Concept Class**



# CEC-OER-Beyond Classroom





## **NMEICT: ePG-Pathshala**

# http://epgp.inflibnet.ac.in





Inviting

Home Student Corner NME-ICT (MHRD) Search Stats Feedback Downloads Quiz



#### About

An MHRD, under its National Mission on Education through ICT (NME-ICT), has assigned work to the UGC for development of e-content in 77 subjects at postgraduate level. The content and its quality is the key component of education system.

High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being develope under this initiative named e-PG Pathshala.

On the auspicious presence of Hon'ble President Shri.

Pranav Mukherjee, Hon'ble HRM Shri. Prakash

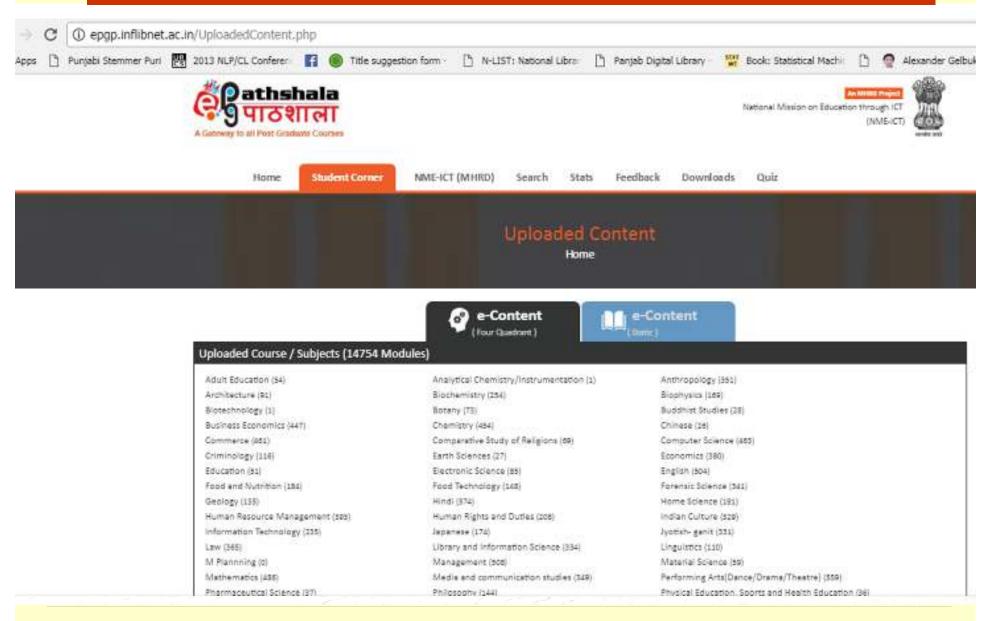
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Pandey, the e-PG Pathshala Video is shown.

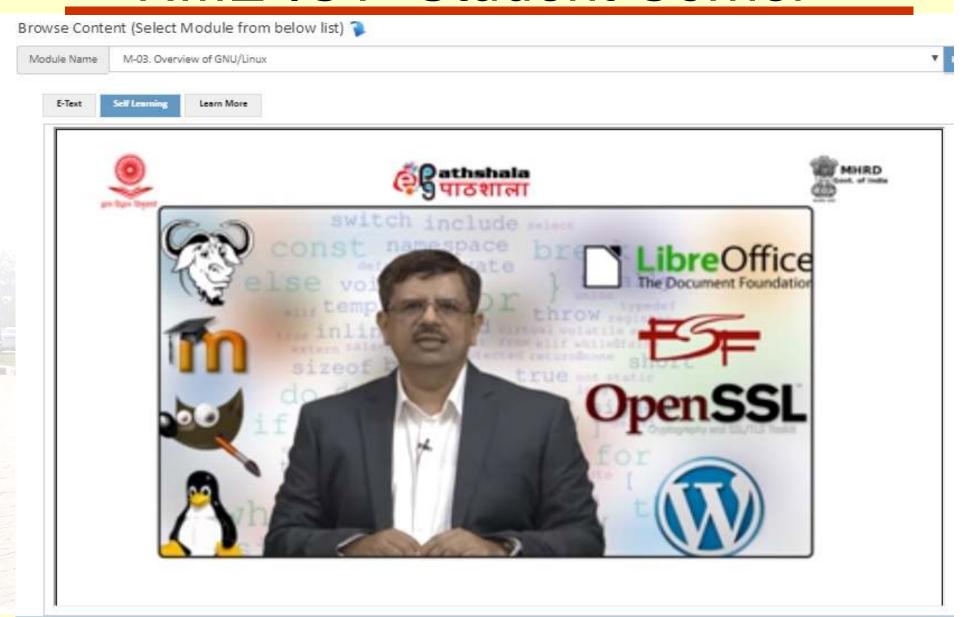
#### **Subject Category**



## NME-ICT- Student Corner



## NME-ICT- Student Corner



# Inviting Expression of Interest for developing UGC PG MOOCs

- 1. UGC Public Notice For Expression of Interest for developing MOOCs. (Click Here)
- 2. UGC Advertisement For Expression of Interest English (Click Here) Hindi (Click Here)
- 3. Click Here for Apply Online http://ugcmooc.inflibnet.ac.in/swayam/
- 4. Instructional Manual (Click Here)
- 5. Important Links
- i) Guidelines for developing Online Courses for SWAYAM 1st June, 2017. (Click Here)
- ii) Funding pattern (based on MHRD MOOCs guidelines, March, 2016). (Click Here)
- iii) API-4th-Amentment-Regulations-2016. (Click Here)
- iv) UGC (Credit Framework for Online Courses through SWAYAM) Regulation, 2016. (Click Here)
- v) Guidelines for developing e-Text, & Video PPT. (Click Here)
- http://epgp.inflibnet.ac.in/download/Inviting%20Expression%20of%20Interest%20for%20developing%20UGC%20PG%20MOOCs.pdf



### NMEICT - NPTEL

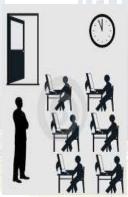
### National Programme on Technology Enhanced Learning

- ✓NPTEL is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating course contents in engineering and science.
- ✓Web supplements were expected to cover materials that could be delivered in approximately forty hours. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and core science programmes that all engineering students are required to take in their undergraduate engineering programme in India were chosen initially.
- ✓ Contents for the above courses were based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities in India.

## NPTEL Online Certification (NOC)



Open Online Course (Enrollment is free)
-onlinecourses.nptel.ac.in

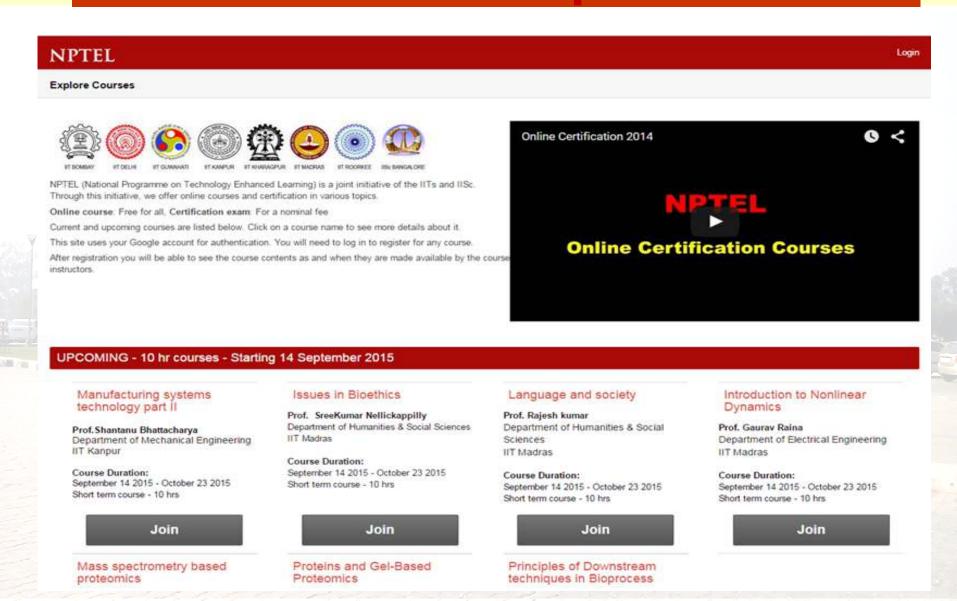


Proctored Exam(optional for a free)
 -cities across the country



Certificate-e-verifiable, from IITs

## onlinecourses.nptel.ac.in



## https://onlinecourses.nptel.ac.in



## Course Introduction Page



### Probability and Random Variables/ Processes for Wireless Communications

### About the course

Concepts in probability and random variables' processes play a fundamental role in understanding various aspects of wireless communication systems. Characterizing several components of wireless systems such as the average transmit power, by the mor rate and behavior of the fading channel coefficient requires knowledge of principal coefficient requires knowledge of principal random variables and processes. This course is designed to serve as a basic course towards introducing the students to various aspects of probability from the perspective of modern digital and wireless communications. Thus, if will focus on basic concepts in probability random variables and random processes, while also illustrating digital wireless communication specific examples to better bridge the gap between theory and application.

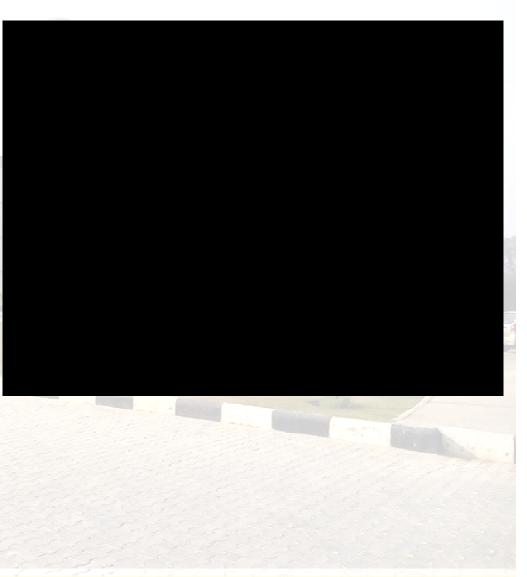


### Intended audience

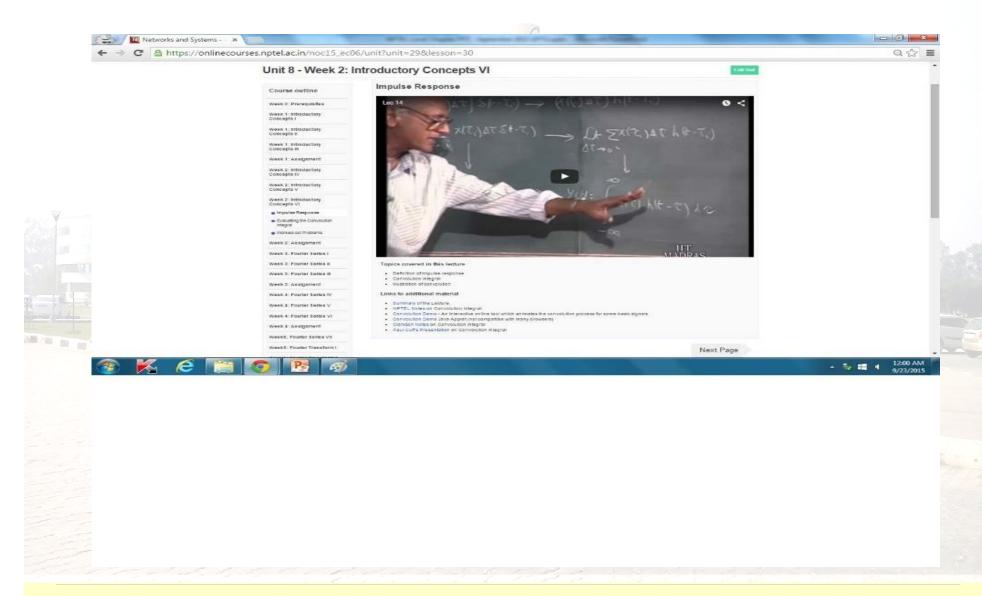
- Can be both core or elective. Core course for students in Signal Processing and Communications stream.
- . Both UG/PG can be allowed

### Pre-requisites

- . BE/ME/MS /PhD can be allowed
- Basic knowledge of sets, calculus and mathematical basics



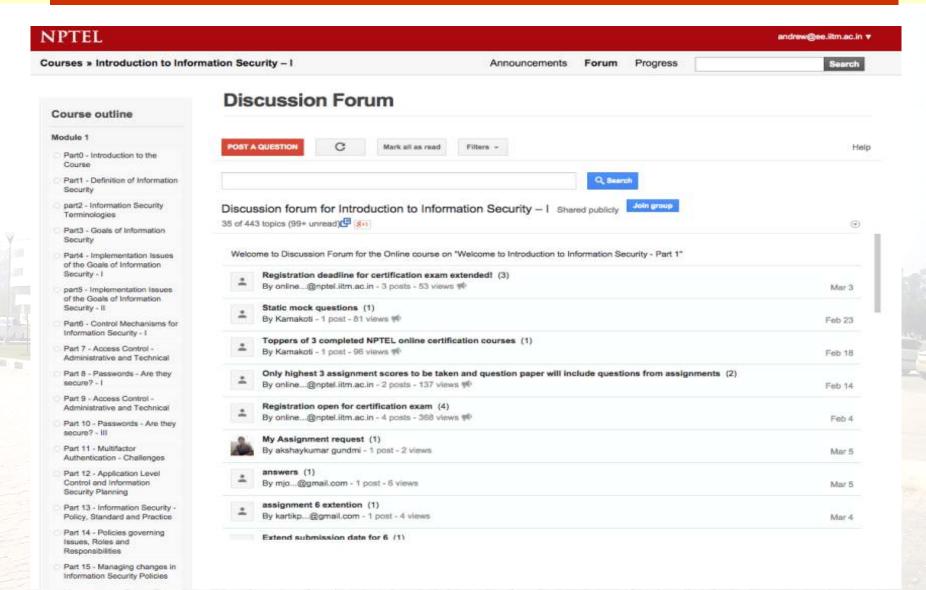
## Course Lesson Page



## **Assessment Questions**

NPTEL andrew@ee.iitm.ac.in ▼ Courses » Introduction to Information Security - I Announcements Forum Progress Assessment on Module1 Course outline The due date for submitting this assignment has passed. Due on 2015-01-31, 12:00 IST Module 1 Part0 - introduction to the 1) Information security began with which report ? 1 point Course Rand Report R-609 Part1 - Definition of Information Rand Report R-906 Security Rand Report S-369 Rand Report S-906 part2 - Information Security Terminologies 2) Three pillars of security are ... 1 point Part3 - Goals of Information Privacy, Varacity, Availability Security Effictiveness, Efficiency , Reliability Part4 - Implementation issues Effictiveness, Confidentiality, Compliance of the Goals of Information Confidentiality, Integrity, Availability Security - I part5 - Implementation Issues 3) The informtion technology department is the owner of which information asset 1 point of the Goals of Information Personel data because personal data are stored in a computer. Security - II All the security Devices such as firewall routers, antivirus etc. Part6 - Control Mechanisms for Only the servers and Desktops. Information Security - I All technological assets except Data. Part 7 - Access Control -Administrative and Technical 4) Information at the core of the sphere is available for 7 point Members of the organization Part 8 - Passwords - Are they Everyone through internet secure? - 1 Only to System Administrator Part 9 - Access Control -NONE of these Administrative and Technical Part 10 - Passwords - Are they 5) Contingency planning, data itnegrity, physical security are part of 7 point secure? - III Management controls Part 11 - Multifactor poerational controls Authentication - Challenges technical controls NONE of these Part 12 - Application Level Control and Information Security Planning 6) IDS stands for 7 point Intrusion Detection Systems Part 13 - Information Security -Policy, Standard and Practice Intrusion Development Systems Introduction to Disaster Security Part 14 - Policies governing Introduction to Disaster Systems Issues. Roles and Responsibilities 7) Operational Controls coverideal 1 point Part 15 - Managing changes in With the operational functionality of security in the organization Information Security Policies Security processes that are designed by the strategic planners and performed by security administration of the organization Part 16 - Spheres of Personnel security, physical security and the protection of production inputs and outputs Information Security Those tactical and technical issues related to designing and implementing security in the organization Quiz : Assessment on

## **Discussion Forum**



### Features of Online Course Portal



- Usual features
  - Videos, Forum,Assignments
- Unique features
  - Hands-on programming
    - C, C++, Java, Verilog
  - Subjective assignments
    - grading by TAs possible
  - Mentors
    - monitor student grades

## Sample Programming Assignments

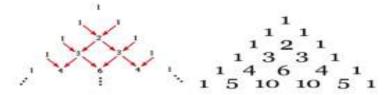
### Pascal's Triangle - Sum of Selected Coefficients

### Due on 2015-02-03, 06:00 IST

You must have heard of Pascal's triangle. In this programming assignment, your program is required to compute the sum of a given set of elements of the Triangle. Most importantly, your program should have a recursive function to calculate the values in the triangle

As you know, the values in the Pascal's Triangle are called Binomial Coefficients. At the top tip of the arrar makes up the zeroth row. The first row contains two 1's . In general, in each row, the first and the last ms Last ant on rod number in the /th row, add the two numbers immediately above it in (i-1)th row, as shown in the diagram be

Due on 2014-10-19, 23:59 IST



### INPUT & OUTPUT:

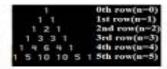
The input consists of multiple lines.

The first line contains a number o which indicates that the number of rows in the Pascal's triangle will be on triangle are indexed starting with 0 at the top and the elements in a row are also indexed starting with a 0). The second line contains a number in which indicates the number of transactions to be performed on the transaction is given in a separate line. A transaction is a space separated list of integers. The first integer in number, say R, and the rest of the integers in the list indicate the indicate of values in row R. For each transi. Sample Test Cases sum of given coefficients in the given row R.

Example: Input will be given in the following format:

312 51114

Here, the First line contains number 5. So there will be 6 rows in the corresponding Pascal's triangle as shown be



- The Second line of the input indicates that we must perform 3 transactions.
- . The Third line contains a space separated list, i.e., 3.1.2 the output for this line should be the sum of 1%; the 3" row of the triangle (thus output for this transaction should be  ${}^{3}C_{+}{}^{3}C_{2} = 8$ ).
- Similarly we can compute the output for the other two transactions leted in lines 4 and 5.

Lavel: Difficult

There are 'n' ants on a 'n'+1' length rod. The ants are numbered from 1 to n and are initially placed at positions starting from position 1 till position n. They are moving either in left direction (denoted by '-1') or in the right direction (denoted by '1'). Whenever an ant. crosses the boundary of the rod it falls off the rod. You are given the initial direction of the arts. Now, whenever two arts collide their direction switches, i.e. the ant going in left direction ("-1) changes it's direction towards right ("1") and the ant going in the right. direction ("1") changes it's direction towards laft ("-1"). Find last ant to fall off the rod. Note: In case two ants are falling simultaneously in the end print the index of the lower indexed ant.

First line contains the integer 'n' denoting the total number of ents s.t. 1 <= n <= 1,000 Second line contains 'n' space separated numbers (either '1' or '-1') denoting the initial directions of the ants.

Output a single integer which is the index (lower index in case two ants are falling simultaneously in the end) of the last ant to fall off

```
Input
Test.
Cinc
 1.1
Test
Case
 11-1111-11
 1-111-11-11-1-1
```

The output must be a space separated sequence of integers terminated by a new-line. For each transaction there must be 1 integer in the output list that corresponds to the sum of specified coefficients in that transaction. If the transaction has an invalid input, i.e., when any of the indices are out of bound or the row number is greater than n, then the output must be a -1.

### Features of Certification Process



- Proctored exam
  - run by a partner
  - centers across the country
  - around Rs. 1000 per student
  - programming exam for programming courses
- Certificate
  - from IITs
  - e-verifiable through url
  - with NASSCOM, if fitting

## Types of Courses

- Half-semester: 20 hours
  - 8 weeks, 2.5 hours of lecture per week
  - Weekly assignments
  - Run like a typical MOOC
- Full-semester: 40 hours
  - 12 weeks, 3-4 hours of lecture per week
  - Two quizzes or practice exams
  - Mostly use existing NPTEL course material for self-study
- 10 hr courses (1 credit equivalent)
  - 4-5 weeks, 2-2.5 hrs of lecture per week
- Disciplines
  - Engineering & Sciences
  - Humanities /Management



# **NMEICT: Spoken Tutorial**

http://spoken-tutorial.org/



# NMEICT: Spoken Tutorial http://spoken-tutorial.org/

- √The Spoken Tutorial project is the initiative of the "Talk to a Teacher" project of the National Mission on Education through Information and Communication Technology, launched by MHRD, Govt of India.
- ✓ Free learning and Open Source Software in your mother-tongue
- ✓ Official launch on the 26th of January, 2010
- ✓a variety of Spoken Tutorials on various Free and Open Source Software (FOSS) in various Indian regional languages.
- ✓Our objective is to pass on the knowledge of technology and free and open source <u>software</u> (FOSS) through the website to the millions in our country who lack opportunities and/or access to learn any <u>software</u>.
- √The <u>spoken Tutorial</u> Project aims to make <u>spoken tutorial</u>s on FOSS available in several Indian languages, for the learner to be able to learn in the language he/she is comfortable in.
- ✓The goal is to enable the use of <u>spoken tutorial</u>s to teach in any Indian language, and to be taught to learners of all levels of expertise- Beginner, Intermediate or Advanced.

# NMEICT: Spoken Tutorial http://spoken-tutorial.org/

- ■This project is for the community and by the community.
- ■Through the portal, we aim to reach out to like-minded individuals to collaborate with us and with each other to create <a href="Spoken Tutorial">Spoken Tutorial</a>s.
- ■The target group is the community at large, including school children, college students, working professionals, retired professionals, housewives, teachers, trainers, research scholars, software users and developers.
- ■The aim is to reach out to all the people in India through this portal.
- ■Conducting workshops using Spoken Tutorials and give certificates to those who pass an online test. For more information on workshops, please write to contact@spoken-tutorial.org
- ■Through the website <a href="http://spoken-tutorial.org">http://spoken-tutorial.org</a> you can Learn many <a href="mailto:software">software</a> by yourself.
- Be a contributor to the community by creating original tutorials or dubbing into other languages

# NMEICT: Spoken Tutorial http://spoken-tutorial.org/

- Lead the national effort for any FOSS
- Lend your expertise in a particular FOSS by being a Reveiwer / Domain Expert
- •Help conduct workshops in colleges and schools across India
- •Spread awareness about this project. Become a promoter or an ambassador
- •To achieve our aims, we must Reach out to as many people as possible to spread the awareness of the portal so that people can learn and contribute.
- ·Build up the community so that the portal will be self-sustaining
- •Channelize a way through your contacts to reach out to the people who wish to learn and contribute.
- •All spoken tutorials on this website are reviewed by domain experts in that particular field for accuracy.
- •Don't forget to check <a href="http://spoken-tutorial.org">http://spoken-tutorial.org</a> frequently because we add at least five tutorials weekly! You are free to use any of the tutorials featured on this site for self-study and educational purposes.
- •We look forward to partner with you in our effort to take <u>software</u> education to the masses and to Bridge the Digital Divide!



## **NMEICT: Talk to Teacher**

http://co-learn.in/



### TALK TO A TEACHER

CORRIDORS OF LEARNING





Researchoscope is a series of talks given by Ph.D. students at IIT Bombay regarding their research work.



Courses on View comprises of courses taught by IIT Bombay faculty that have been recorded live in the classroom.



Ask a Question is a Q&A series where a panel of IIT Bombay faculty answer conceptual doubts in Engineering & Science

## **NMEICT-Sakhshat: Talk to Teacher**

# http://co-learn.in/

### Researchoscope:

Researchoscope is a series of talks given by Ph.D. students at IIT Bombay regarding their research work. http://research.co-learn.in/

### **Courses on View**

Courses on View comprises of courses taught by IIT Bombay faculty that have been recorded live in the classroom.

http://video.co-learn.in/cov/

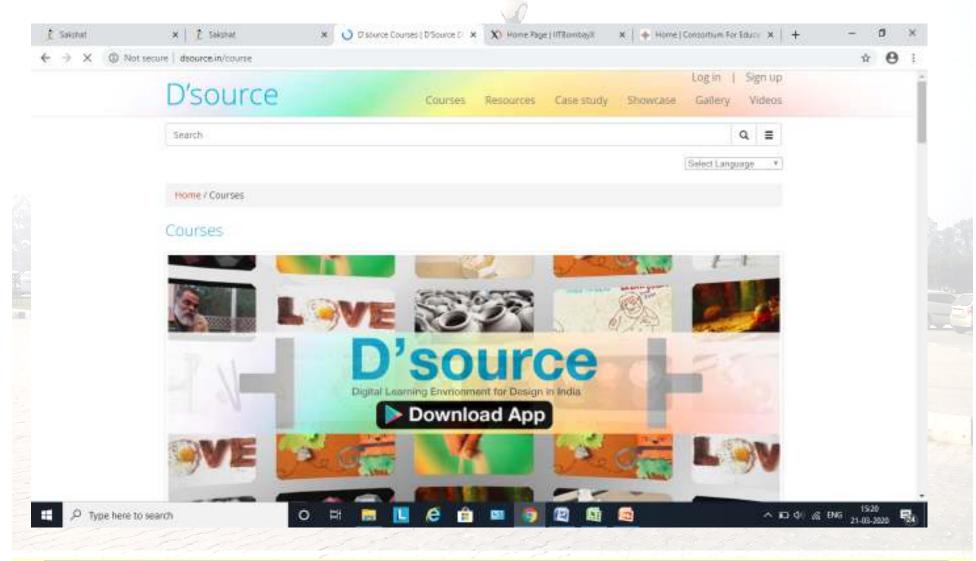
### Ask a question

Ask a Question is a Q&A series where a panel of IIT Bombay faculty answer conceptual doubts in Engineering & Science

http://ask.co-learn.in/

### **NMEICT-Sakhshat**: e-Repository

E-Kalpa ( http://www.dsource.in/)



### **NMEICT-Sakhshat**: e-Repository

## E-Acharya (http://eacharya.inflibnet.ac.in/)

Vidya-mitra is an online learning portal for all the econtent projects developed under the NME-ICT (National Mission on Education through Information and Communication Technology), MHRD. The portal provides facility to search and browse all hosted content wherein a learner can easily access the desired material including audio/video learning material, textual material, multimedia-enriched materials etc. through a single interface. Moreover, features of faceted search, usage statistics, projectwise access, My-Space are incorporated in this portal.

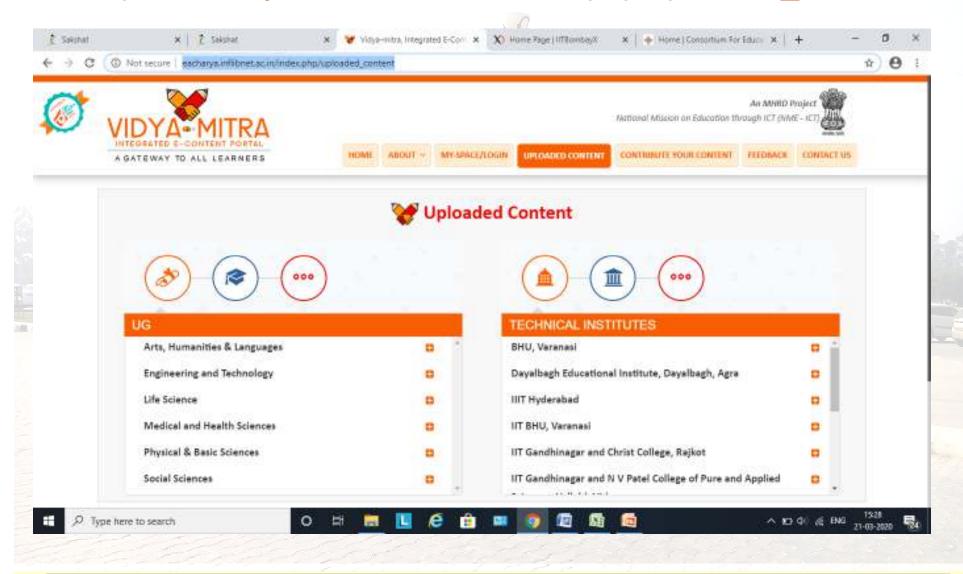
### **NMEICT- Sakhshat: e-Acharya**

(http://eacharya.inflibnet.ac.in/)

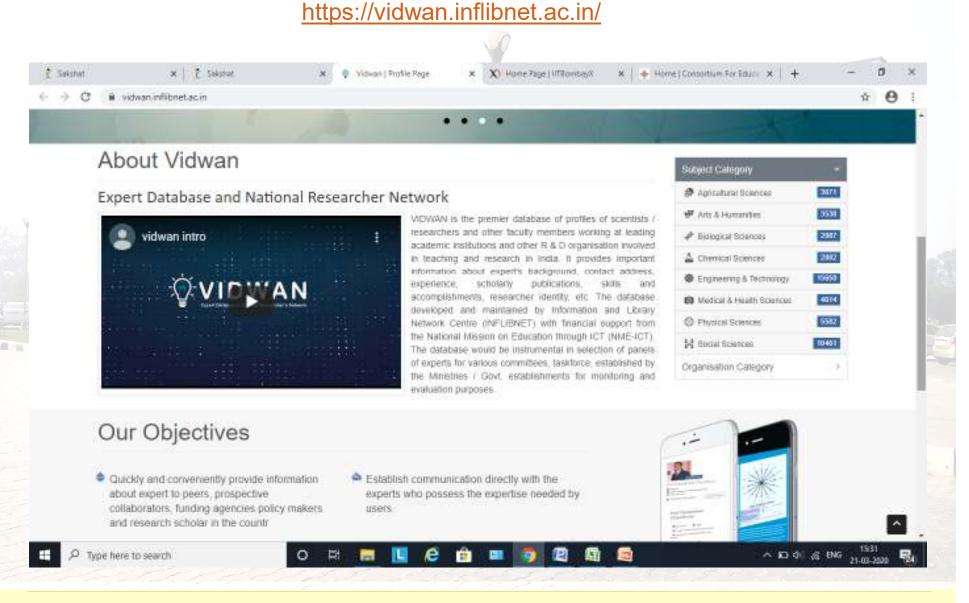


## E-Acharya

http://eacharya.inflibnet.ac.in/index.php/uploaded\_content



### NMEICT-SAKSHAT: e-Content Repository: Vidwan



## Vidwan

VIDWAN is the premier database of profiles of scientists / researchers and other faculty members working at leading academic institutions and other R & D organisation involved in teaching and research in India. It provides important information about expert's background, contact address, experience, scholarly publications, skills and accomplishments, researcher identity, etc. The database developed and maintained by Information and Library Network Centre (INFLIBNET) with financial support from the National Mission on Education through ICT (NME-ICT). The database would be instrumental in selection of panels of experts for various committees, taskforce, established by the Ministries / Govt. establishments for monitoring and evaluation purposes.

# E-content generation for post graduate program in environment science







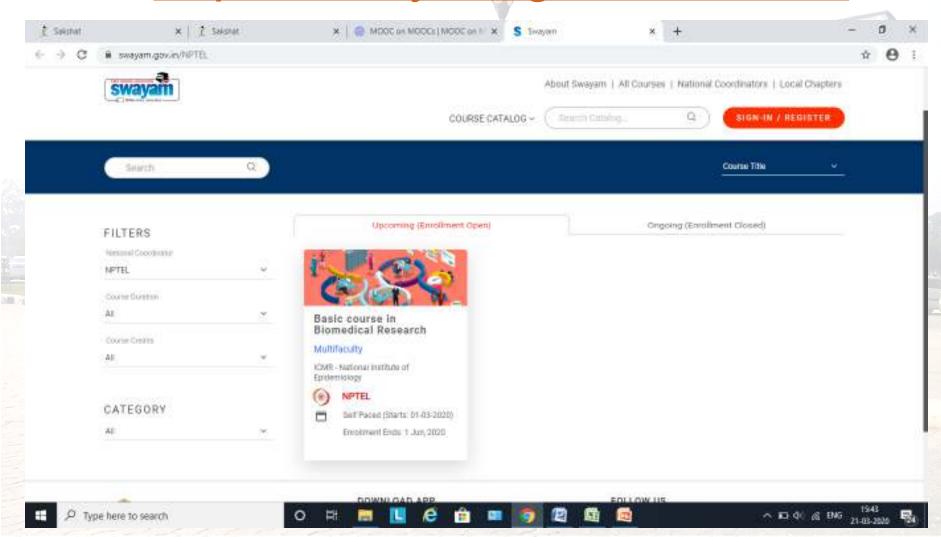
# NMEICT-Sakshat MOOC-IITBombayX https://www.iitbombayx.in/

- IITBombayX has been created for learners and institutions that seek to transform themselves through cutting-edge technologies, innovative pedagogy and rigorous courses.
- Through our institution, we present the best of higher education online, offering opportunities to anyone who wants to thrive, grow and achieve.
- Our goals, however, go beyond offering courses and free content to the learners. We are committed to research that will allow us to understand how learners get trained, how technology can transform learning, and the methods employed by faculty and professors to teach on campus and beyond.
- As innovators and experimenters, we want to share what we discover. The IITBombayX platform is available as open-source. By conducting and publishing significant research on how learners get trained, we will empower and inspire educators around the world and promote success in Indian massive open online learning.
- Our aim is to become a leading resource for learners by staying focused on the goals and principles set forth, when forming IITBombayX.



### **NMEICT-Sakshat MOOC-NPTEL**

https://swayam.gov.in/NPTEL



### **NMEICT-Sakshat MOOC-NPTEL**

# https://swayam.gov.in/nptel/

This is done through a platform that facilitates hosting of all the courses, taught in classrooms from Class 9 till post-graduation to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to any learner. More than 1,000 specially chosen faculty and teachers from across the country have participated in preparing these courses.

The courses hosted on SWAYAM are in 4 quadrants -(1) video lecture,

- (2) specially prepared reading material that can be downloaded/printed
- (3) self-assessment tests through tests and quizzes and (4) an online discussion forum for clearing the doubts. Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy / technology.

### **NMEICT-Sakshat MOOC-NPTEL**

## https://swayam.gov.in/nptel/

In order to ensure that best quality content is produced and delivered, nine National Coordinators have been appointed. They are:

AICTE (All India Council for Technical Education) for self-paced and international courses

NPTEL (National Programme on Technology Enhanced Learning) for Engineering

**UGC** (University Grants Commission) for non technical post-graduation education

CEC (Consortium for Educational Communication) for under-graduate education

NCERT (National Council of Educational Research and Training) for school education

NIOS (National Institute of Open Schooling) for school education

IGNOU (Indira Gandhi National Open University) for out-of-school students

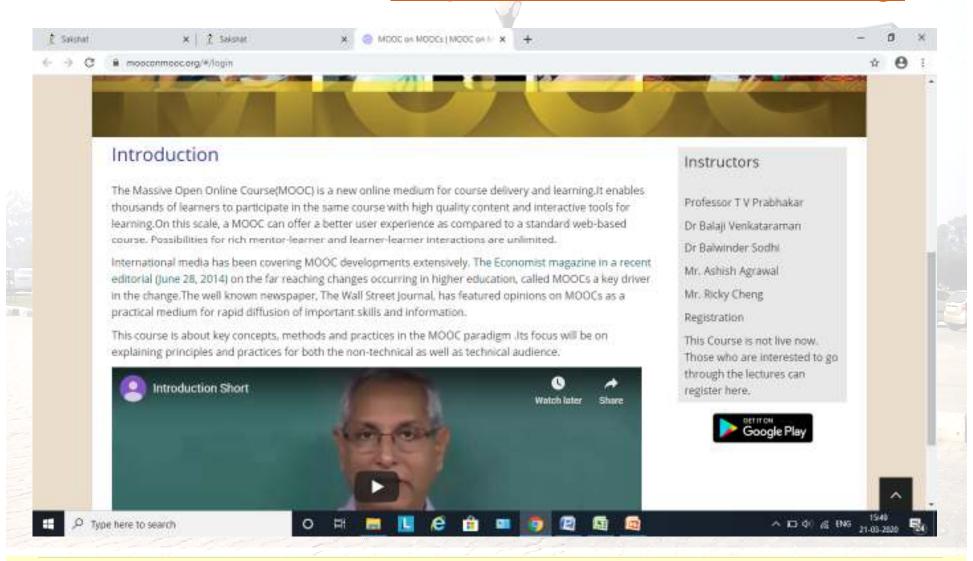
**IIMB** (Indian Institute of Management, Bangalore) for management studies

NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programme

Courses delivered through SWAYAM are available free of cost to the learners, however learners wanting a SWAYAM certificate should register for the final proctored exams that come at a fee and attend in-person at designated centres on specified dates. Eligibility for the certificate will be announced on the course page and learners will get certificates only if this criteria is matched. Universities/colleges approving credit transfer for these courses can use the marks/certificate obtained in these courses for the same.

### **NMEICT-Sakshat MOOC-**

MOOC on MOOC <a href="https://www.mooconmooc.org/">https://www.mooconmooc.org/</a>



### **NMEICT-Sakshat MOOC-**

### MOOC on MOOC <a href="https://www.mooconmooc.org/">https://www.mooconmooc.org/</a>

The Massive Open Online Course(MOOC) is a new online medium for course delivery and learning. It enables thousands of learners to participate in the same course with high quality content and interactive tools for learning. On this scale, a MOOC can offer a better user experience as compared to a standard web-based course. Possibilities for rich mentor-learner and learner-learner interactions are unlimited. International media has been covering MOOC developments extensively. The Economist magazine in a recent editorial (June 28, 2014) on the far reaching changes occurring in higher education, called MOOCs a key driver in the change. The well known newspaper, The Wall Street Journal, has featured opinions on MOOCs as a practical medium for rapid diffusion of important skills and information.

This course is about key concepts, methods and practices in the MOOC paradigm .Its focus will be on explaining principles and practices for both the non-technical as well as technical audience.

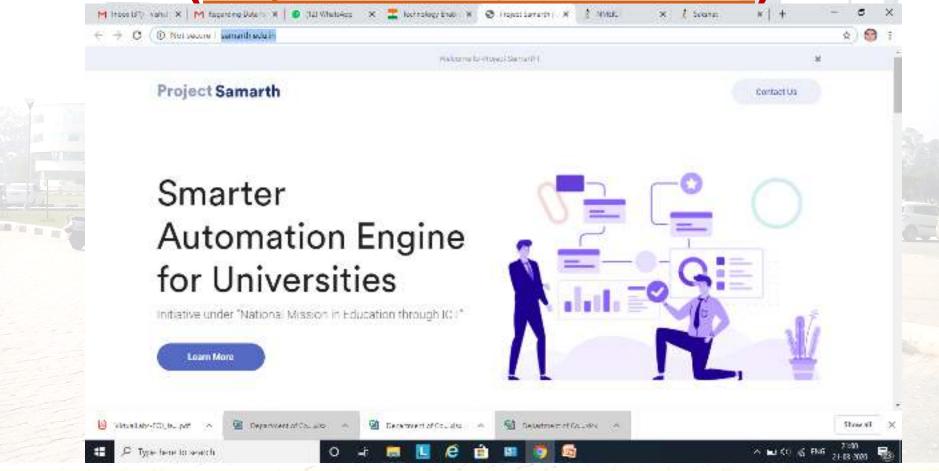




## NMEICT-Swayam: Software & Application

**University ERP Mission** 

(http://samarth.edu.in/)

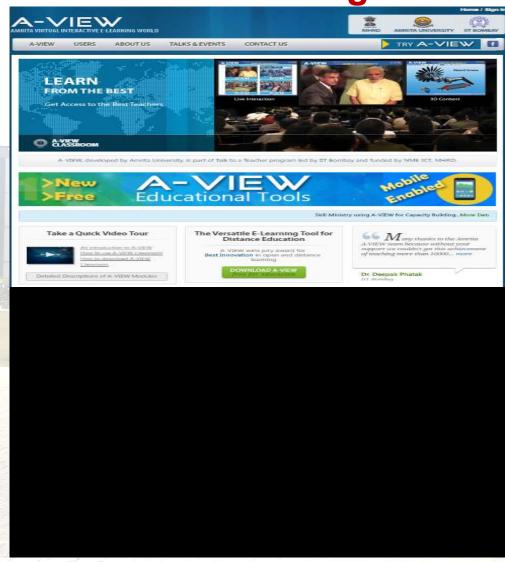




## **NMEICT: TEACHER TRAINING**

### A-View: Amrita Virtual Intereactive E-Learning World

Under Talk to a Teacher project sanctioned to IIT, Bombay, A-VIEW developed by Amrita Vishwa Vidyapeetham is being used as the collaboration tool for National Teacher the Empowerment Program. Deepak Phatak, IIT Bombay, leads the National Teacher Empowerment Program to train thousands of college teachers across the nation. More than 36, 000 teachers have already been trained under this programme. http://aview.in/



#### **A-VIEW - Amrita Virtual Intereactive E-Learning World**

- ❖ A-VIEW is an advanced multi-modal, multi-platform, collaborative e-learning solution which allows an instructor to teach or interact with a large number of learners transcending geographies on a real-time basis through live audio video streaming and synchronized content sharing.
- ❖ A-VIEW allows the instructor to perform live evaluation of the learners and to get real-time feedback from attendees on the go.
- ❖ A-VIEW can also act as an online meeting tool that can support online social collaboration and interactions with multiple users from various locations simultaneously.

## Why A-VIEW?

- Online Virtual Classrooms
- A-VIEW facilitates online workshops
- Meeting Tool Seamless live video and audio streaming
- Content collaboration (Documents, Presentations, Video, 2D & 3D models, Whiteboards)
- Live Evaluation and Feedback
- Video record, playback and edit functions

## THE BENEFITS OF OPTING A-VIEW for

## setting up online classes and meetings are

- ✓ A-VIEW is Free for Higher Education in India
- ✓ Users can contribute to the content
- ✓ Designed to act as Educational and Meeting tool simultaneously
- √ Highly Adaptable
  - Variable Number of Displays
  - Low Bandwidth Usage (Rural Areas)
- √ Highly Customizable
  - For Educational System
  - For Multiple Languages
  - For Existing Infrastructure



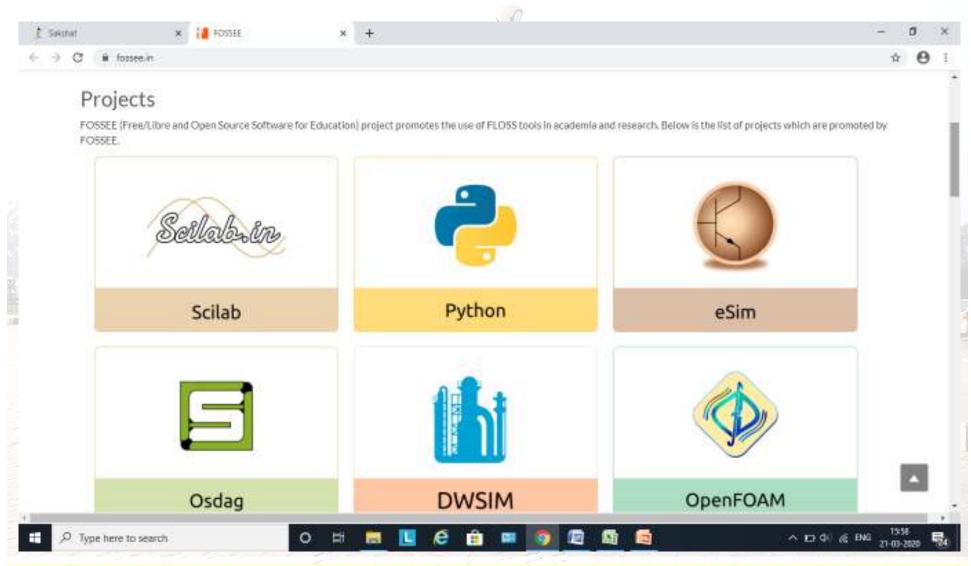
## NMEICT: Swayam Software & Applications: FOSSEE http://fossee.in/

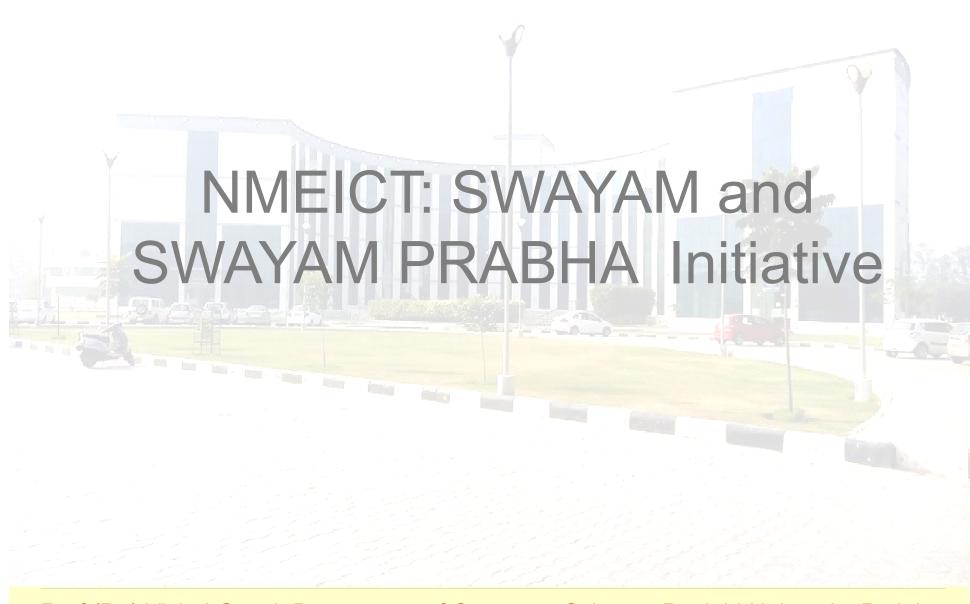
FOSSEE (Free and Open Source Software in Education) project promotes the use of FOSS tools to improve the quality of education in our country.

We aim to reduce dependency on proprietary software in educational institutions. We encourage the use of FOSS tools through various activities to ensure commercial software is replaced by equivalent FOSS tools.

We also develop new FOSS tools and upgrade existing tools to meet requirements in academia and research. The FOSSEE project is part of the National Mission on Education through Information and Communication Technology (ICT), Ministry of Human Resources and Development, Government of India.

# NMEICT: Swayam Software & Applications: FOSSEE http://fossee.in/





# NMEICT: SWAYAM and SWAYAM PRABHA Initiative

- 1. SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) *India MOOCs*
- 2. SWAYAM PRABHA DTH Project for educational excellence

Both Initiatives were launched on August 15, 2016

# NMEICT: SWAYAM and SWAYAM PRABHA Initiative

In India where there is shortage of qualified faculty and resource crunch in setting up physical infrastructure to reach out the learners at mass scale, MOOCs seems to be a viable solution.

However, instead of emulating the western world we need to design a solution that suits best with the country's pressing need to impart quality mass education.

#### **NMEICT:SWAYAM**

- •SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality.
- •The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged.
- •SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.
- •This is done through an indigenous developed IT platform that facilitates hosting of all the courses, taught in classrooms from 9th class till post-graduation to be accessed by anyone, anywhere at any time.

## **SWAYAM** is a:

- One-stop web and mobile based interactive platform courses ranging from High School to University level.
- High quality learning experience using multimedia on anytime, anywhere basis.
- State of the art system that allows easy access, monitoring and certification.
- Peer group interaction and discussion forum to clarify doubts
- Hybrid model of delivery that adds to the quality of classroom teaching.

#### **SWAYAM**

All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to the residents in India.

More than 1,000 specially chosen faculty and teachers from across the Country have participated in preparing these courses.

The courses hosted on SWAYAM will be in 4 quadrants –

- (1) Video lecture,
- (2) Specially prepared reading material that can be downloaded/printed
- (3)Self-assessment tests through tests and quizzes and
- (4)an online discussion forum for clearing the doubts.
- (5)Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy / technology.
- In order to ensure best quality content are produced and delivered, seven National Coordinators have been appointed: They are <a href="NPTEL">NPTEL</a> for engineering, <a href="UGC">UGC</a> for post-graduation education, <a href="CEC">CEC</a> for under-graduate education, <a href="NCERT">NCERT</a> & <a href="NIOS">NIOS</a> for school education, <a href="IGNOU">IGNOU</a> for out of the school students and <a href="IIMB">IIMB</a> for management studies.

#### **SWAYAM**

- School Education
  - ✓ National Institute of Open Schooling
  - **✓**NCERT
- Out-of-school Education
  - **✓IGNOU**
- Under-graduate education
  - ✓ Engineering Education (NPTEL)
  - ✓ Management Education (IIM Bangalore)
  - **✓**CEC
- Post-graduation education
  - √ Engineering Education (NPTEL)
  - √ Management Education (IIM Bangalore)
  - **√UGC**

## Massive Open Online Course (MOOC)

- Massive potential of extremely large enrolments
- Open both enrolment and resources point of view.
   --Courses are open to anyone without any
  - restrictions or any prior learning requirements.
  - --Open courses that are free for anyone interested in registering with open courseware that can be downloaded, saved, and reused.
- Online content delivery mode.
- Course how a course operates requiring enrolment, a definite timeline, instruction delivery and assessment.

## Objectives of the e-Content Project

- The development of knowledge modules having the right content to take care of the aspirations and to address to the personalized needs of the learners.
- Research in the field of pedagogy for development of efficient learning modules for disparate groups of learners.
- Standardization and quality assurance of contents to make them world class.
- Building connectivity and knowledge network among and within institutions of higher learning in the country with a view of achieving critical mass of researchers in any given field.
- Availability of e-knowledge contents, free of cost to Indians.

### Contd....

- Spreading digital literacy for teacher empowerment.
- Experimentation and field trial in the area of performance optimization of low cost access/devices for use of ICT in education.
- Providing support for the creation of virtual technological universities.
- Identification and nurturing of talent.
- Certification of competencies of the human resources acquired either through formal or non-formal means and the evolution of a legal framework for it.
- Developing and maintaining the database with the profiles of our human resources.

## Scope of e-content



Helpful in scaling up of delivery of Education-Addresses the issue of shortage of Faculty



Addresses the issue of Quality in Higher Education



Addresses the issue of Equity, gender equality and Affordability of education



Provides opportunity for Blended Learning



Self paced- Anywhere -Any time learning

## **Are MOOCs Really Open? MOOC or MOC?**



## Components of a MOOC

- Syllabus learning objectives, scope of the topics, readings, discussions, assignments, and quizzes or tests, weekly schedule.
- Readings and video lectures- archived material in xMOOC, and in a cMOOC, presentation by the facilitator each week or invite a guest lecture.
- Learner Interaction- centralized discussions forums in xMOOCs or distributed open spaces viz. blogs, wikis, Facebook pages, and Twitter in cMOOCs.
- Assessment and Certification- Quizzes, assignments, activities and projects for self-evaluation or with peer evaluation. In some cases it may lead to certification.

## SWAYAM, Built on Open-edX

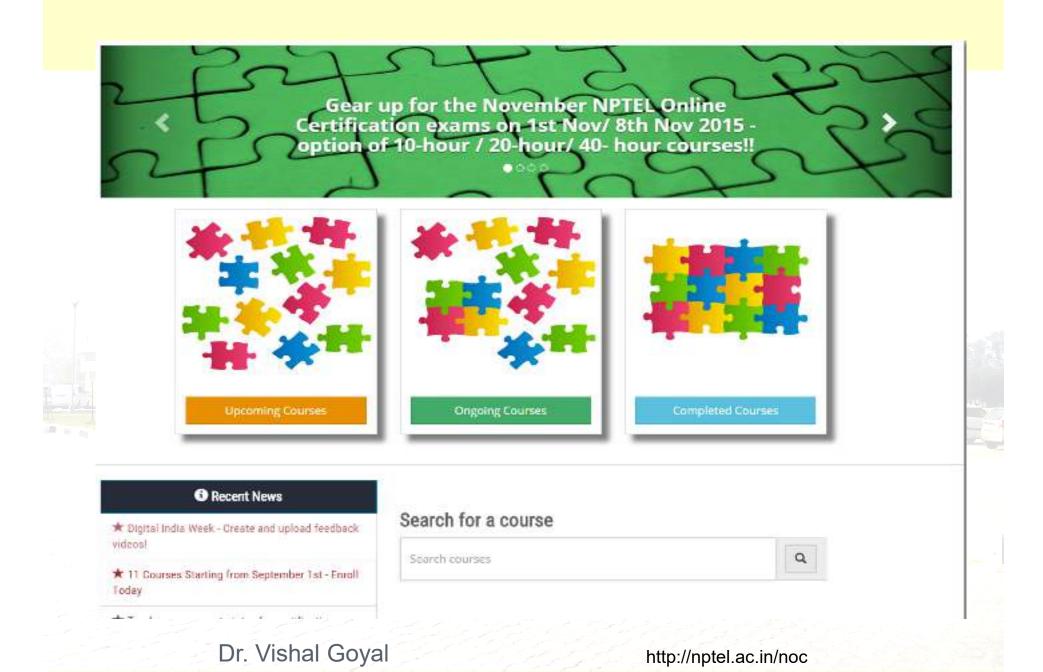


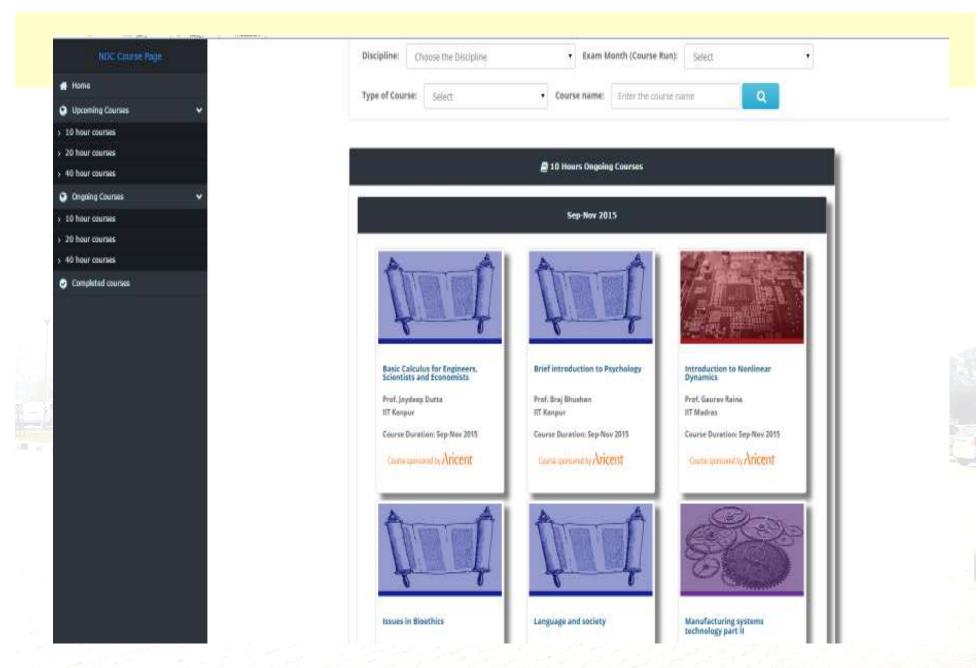
Swayam online courses starting soon.



100

Source: Prof. Deepak B Phatak, IIT Bombay





Dr. Vishal Goyal

http://nptel.ac.in/noc



#### Course abstract

This is an introductory level course in Manufacturing Systems Technology and management(part-II). For most enterprises, the long term goal is to stay in business, grow and make profits. This is particularly true for manufacturing enterprises, which must understand the dynamic changes that are taking place in business environment and are flexible enough to change at every level. This course is an introductory course for engineering professionals who would like to take up careers in manufacturing and also for professionals who are already in manufacturing careers and would like to see the technological changes that manufacturing paradigm has witnessed in the last 3 decades.



#### Course Instructor



#### Prof. Shantanu Bhattacharya

He is currently as Associate Professor at the Department of Mechanical Engineering at the Indian Institute of technology Kanpur. Prior to joining the department he has been associated at a senior management level at Suzuki Motors and has over 6 years of experience in various production capacities and positions, Prof. Bhattacharya currently takes care of the 4-1 laboratory at IIT Kanpur as its coordinator and has also been associated with the TA202 laboratory as coordinator between 2012-2015. Both these laboratories are very high end in terms of offering manufacturing training programs.



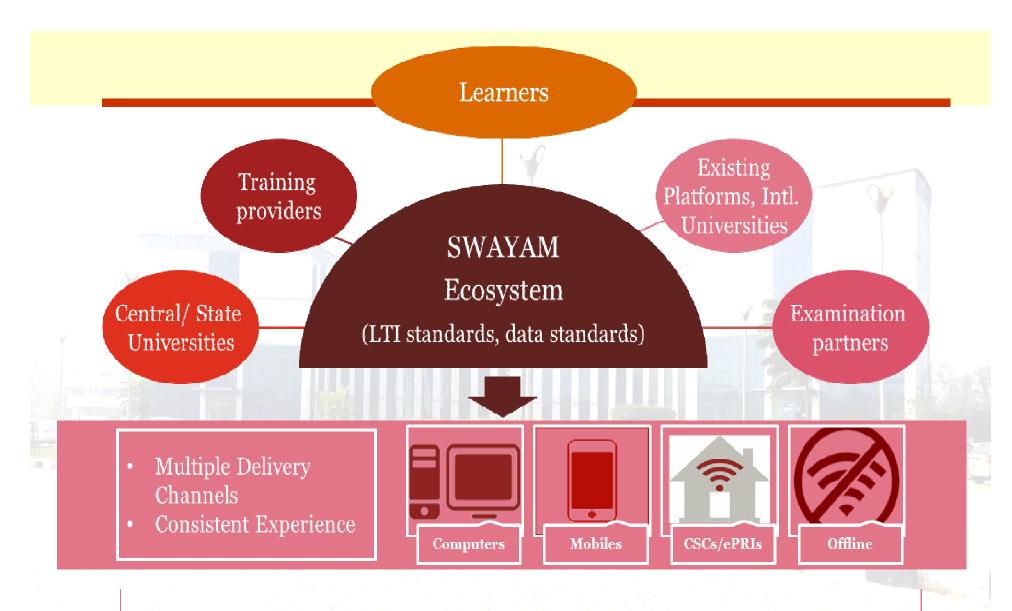
More Info

Enrolled Registered Certificate Received

http://nptel.ac.in/noc

## **National Coordinators**

S.no	National Modes Coordinators	Sectors
1.	University Grants Commission(UGC)	Non Technology Post Graduation Degree Programme
2.	NPTEL	Technical/Engineering UG& PG degree programme
3.	Consortium for Educational Communication	Non Technology Under Graduate degree programme
4.	IGNOU	Diploma and Certificate
5.	CBSE,NCRT & NIOS	Classes 9 <sup>th</sup> to 12 <sup>th</sup>
6.	IIM Bangalore	Management Courses
7.	NITTTR Chennia	Teacher Training



Single-window, Centralized, Integrated, Multi-lingual, Userfriendly platform enabling module based, efficient learning

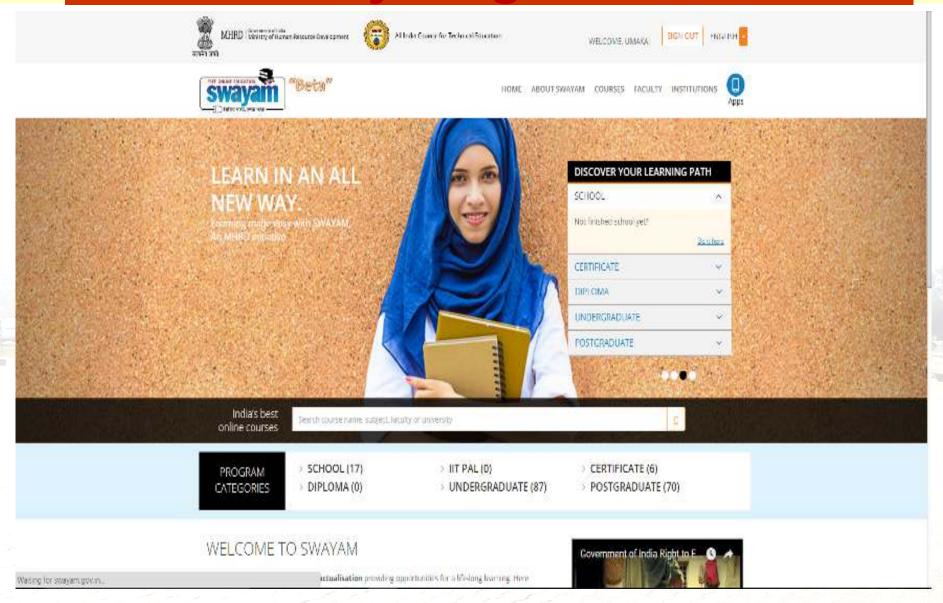
## Four quadrant approach

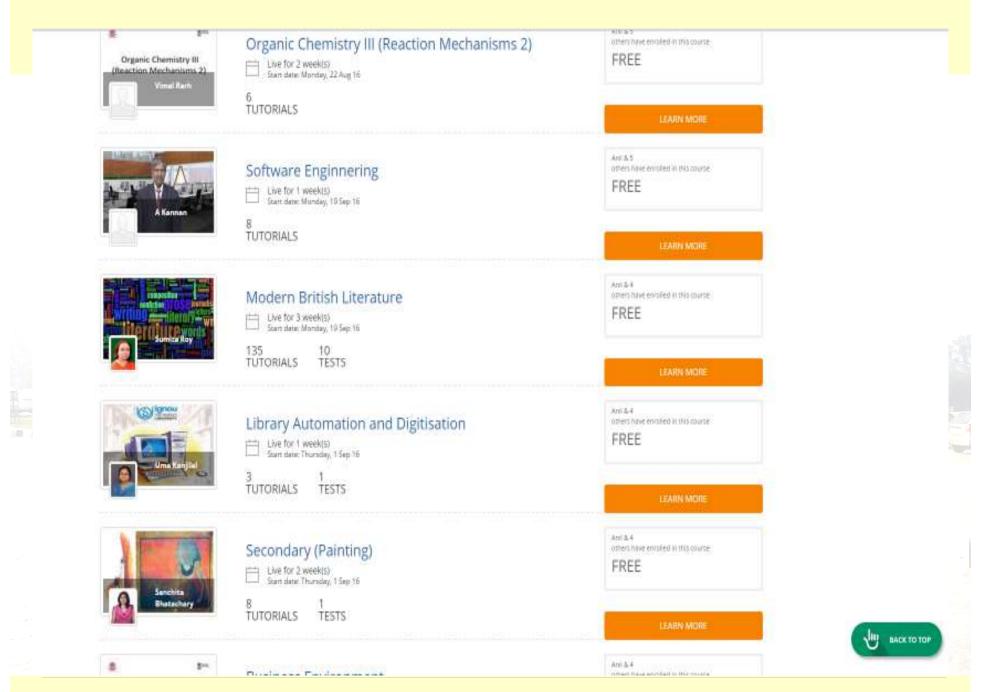
- Quadrant-I is e-Tutorial: Video and Audio Content in an organisd form, Animation, Simulations, video demonstrations, Virtual Labs, etc.
- Quadrant-II is e-Content: PDF, Text, e-Books, illustrations, video demonstrations, documents and Interactive simulations wherever required.
- Quadrant-III is Web Resources: Related Links, Wikipedia Development of Course, Open source Content on Internet, Case Studies, books including e-books, research papers & journals, Anecdotal information, Historical development of the subject, Articles, etc.
- Quadrant-IV is Self-Assessment: Problems and Solutions, which could be in the form of Multiple Choice Questions, Fill in the blanks, Matching Questions, Short Answer Questions, Long Answer Questions, Quizzes, Assignments and solutions, Discussion forum topics and setting up the FAQs, Clarifications on general misconceptions.

#### **Elements for the overall SWAYAM courses**

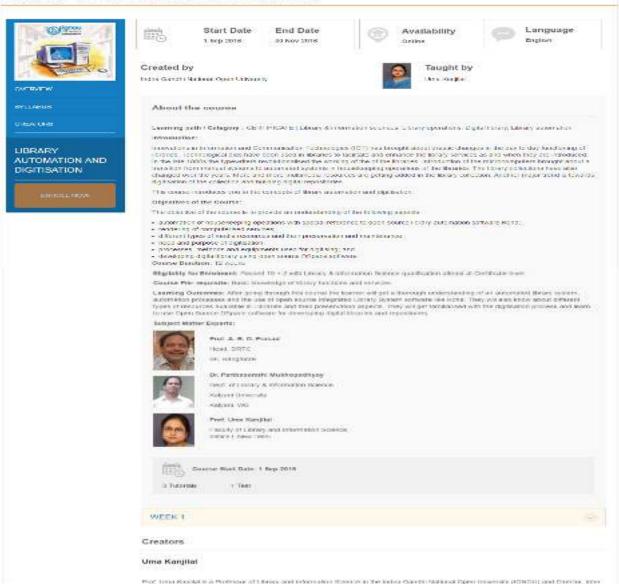
- Syllabus Template (including a course description with key learning outcomes, descriptions of faculty, a detailed course content outline, expectations for participation, certification, and faculty communication, netiquette guidelines, and academic integrity).
- Pre- and post-course surveys
- Course overview to orient on: What is the course about?
   What does the course include? What will I learn in the course? How do I use the course features?
- Course timeline for scheduling learning activities (weekwise detailed plans)
- List of Announcements to deliver reminders for due dates and course transitions.
- Instructions on synchronous and asynchronous engagements (prompts for students to post in the Discussion Forum, polling questions throughout the course, interaction with faculty/ TA (eTutor) as per instruction)

## Swayam.gov.in

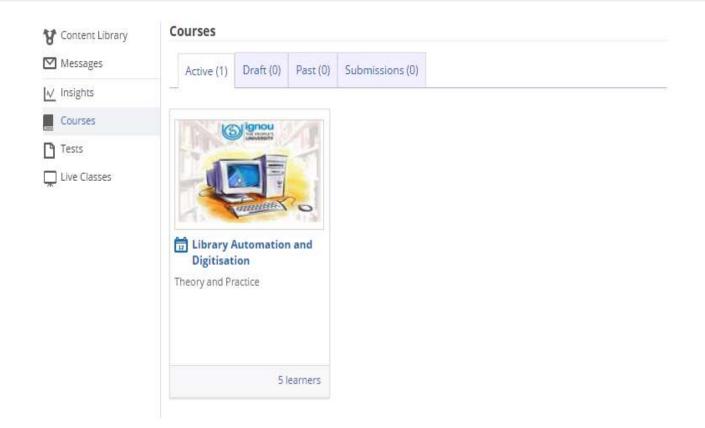








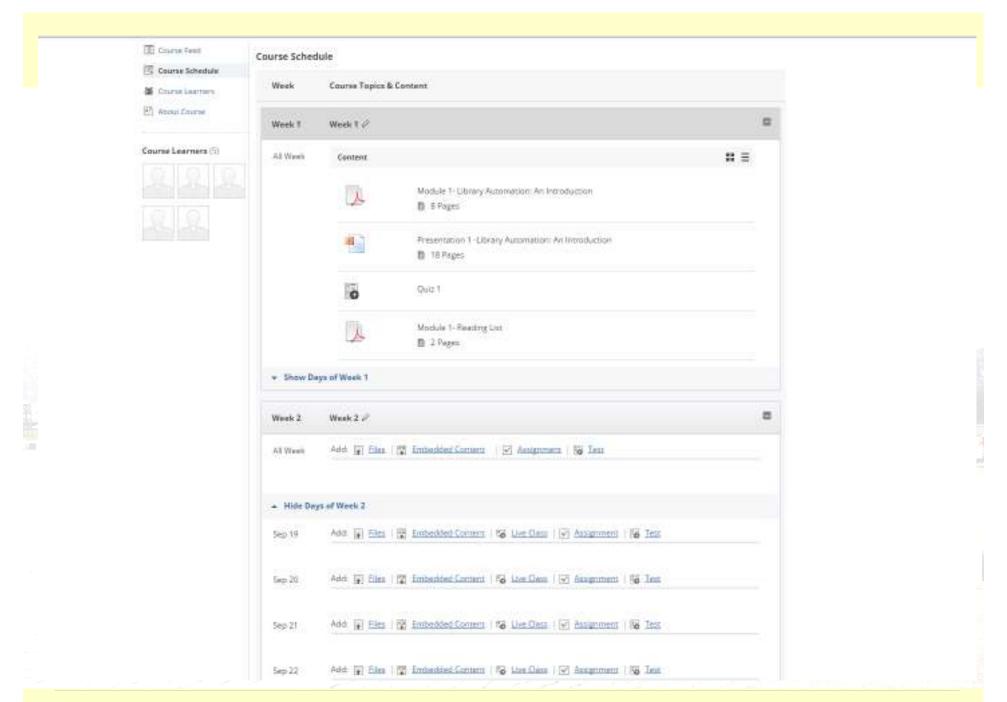




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Swayam helpline: coming soon | email: support@swayam.gov.in

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Prof.(Dr.) Vishal Goyal, Department of Computer Science, Punjabi University Patiala

### Weekly lesson plan template

#### Week 1:Introduction, Learning Outcomes

Content	Activities	Assessment
Video/s	Assignments	Quiz
Multimedia e-content (inclusive	Discussion	Peer Assessment
of graphics/ animations/	Practical assignment (as per	Any other
scenarios/ case-study)	requirement)	
Textual Handout	Any other	
Reading list (core and		
supplementary)		

#### **Continuous Assessment Options**

- Multiple choice tests (quiz tool)
- Tutor Marked Assignments
- Activity based assessment:
  - -Write a commentary, review, camparison, analysis, and observation within your community, reflection (peer assessment).
  - Response to a text, video or other media object for homework(peer assessment).
  - -Prepare a presentation and upload (text, photo, video, PPT).

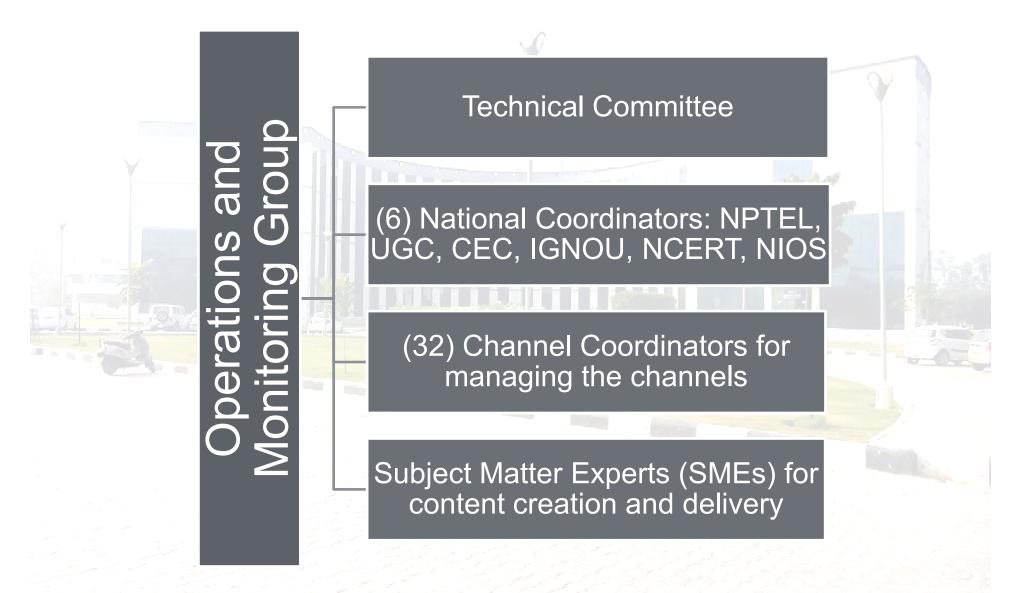
## **Certification through SWAYAM**

- ❖ Accepted and approved evaluation format in alignment with CBCS or any other system that UGC, AICTE, etc. may implement from time to time for credit-based courses, with a term/semester end proctored examination.
  - ✓ The proctored exam to be conducted nationwide through an exam partner.
  - ✓ Learners can get a certificate after they have registered for, written the exam and successfully passed.
  - √ The online assignments/quizzes may carry weightage in the final consolidated score.

## NMEICT: SWAYAM PRABHA – DTH Project for educational excellence

- MHRD project using two GSAT-15 transponders to run (32)
   DTH channels to telecast high quality educational programmes on 24X7 basis.
- Satellite up-linking station at the Bhaskaracharya Space Application Centre of Gujarat (BISAG).
- The subscribers of Free DTH service of Doordarshan can view these Educational channels using the same Set Top Box and TV. No additional investment is required.
- video lessons of SWAYAM would be converted into appropriate format and transferred to BISAG for transmission on the DTH channels.
- Every day, there will be new content of at least 4 hours which would be repeated 6 times a day.
- Curriculum based course contents covering diverse disciplines.
- Channel partners IITs, NPTEL, UGC, CEC, IGNOU, NCERT and NIOS

#### **ORGANISATIONAL STRUCTURE & ROLES**



#### Channels and their allocation

Channel	Channel content	Coondinator
number	Channel content Building sciences (Civil, engineering and allied	Coordinator
1.	Computer science and engineering and computer	NPTEL
2.		IIT Kgpr
3.	Electrical sciences and engineering	IIT Bombay
4.	Electronics and communication engineering	NPTEL
5.	Mechanical sciences and engineering	NPTEL
6.	Physics, applied physics and engineering physics for	NPTEL
7.	Chemistry, metallurgy, chemical sciences and	NPTEL
8.	Mathematics and applied /engineering mathematics,	NPTEL
9.	Interdisciplinary areas (Biotech/nanotech/geosciences	IIT Delhi
10.	QEEE for improving engineering standards	IIT M
11.	UGC 1: Languages	UGC
12.	UGC 2: Foreign languages	IFLU
13.	UGC 3: Arts & Humanities	UGC
14.	UGC 4: Sciences	UGC
15.	UGC 5: Management and Communication	Jamia
16.	UGC 6: Law and legal studies	UGC
17.	UGC 7: Philosophy/religion/social issues	UGC
18.	CEC: Vyas 1 (Non-engineering degree courses)	CEC
19.	CEC: Vyas 2 (Non-engineering degree courses)	CEC
20.	CEC: Vyas 3 (Non-engineering degree courses)	CEC
21.	School education for 9 <sup>th</sup> and 10 <sup>th</sup> standard	NCERT
22.	Physics for 11 <sup>th</sup> and 12 <sup>th</sup> standard (IIT-PAL)	CBSE
23.	Chemistry for 11 <sup>th</sup> and 12 <sup>th</sup> (IIT-PAL)	CBSE
24.	Mathematics for 11 <sup>th</sup> and 12 <sup>th</sup> (IIT-PAL)	CBSE
25.	Biology for 11 <sup>th</sup> and 12 <sup>th</sup> (IIT-PAL)	CBSE
26.	Open Univ: State Open Univs (out of college students)	IGNOU
27.	Open Univ: Agriculture (vocational) & allied sciences	IGNOU
28.	Open Univ: Liberal arts & Humanities	IGNOU
29.	Open Univ: Culture	IGNOU
30.	Open School: Secondary school syllabus	NIOS
31.	Open School: Senior Secondary syllabus	NIOS
32.	Open School: Teacher Education	NIOS

#### Major MOOCs Issues requiring attention

- MOOCs at present are courses not curricula. Only 20% at the moment acceptable for credit earning.
- Learning environment is not just content and self assessment. How to mentor 30 million?
- Large number of users are only window shoppers, this
  is bound to happen in SWAYAM as well.
- MOOCs do not provide the kind of engagement to encourage learning.
- Credit given by the institutions creating MOOCs.
   Acceptance by other institutions is going to be a major issue.
- How the proctored exams are to be conducted for 30 million learners envisaged for SWAYAM in three years?

## NMEICT- BROADBAND CONNECTIVITY TO COLLEGES AND UNIVERSITIES

- Providing connectivity to the colleges, institutions and universities is a key component of the NMEICT.
- The Mission aims to extend computer infrastructure and connectivity to over 26000+ colleges and 2000 polytechnics in the country including each of the department of 419 universities/deemed universities and institutions of national importance as a part of its motto to provide connectivity up to the last mile.
- Up to 400 nodes LAN on average is also being provided under the Mission. Connectivity to universities and colleges is in progress and as on date, 400 universities and nearly 26000 colleges in the country have been connected. For further details visit BSNL- NMEICT portal at http://www.nme.bsnl.co.in/.

## NMEICT- LOW COST ACCESS DEVICE: AAKASH TABLET

- Even the best e-content cannot have a significant impact unless it reaches the vast majority of learners with ease, as and when they demand it. The Mission has funded the development of Ultra Low Cost Computing Devices to enable students, wherever they may be, access to education content. Initially the project was entrusted to IIT Rajasthan, which worked on the specification, design, tendering and procurement of the first version of the Aakash tablet. The Minister of Human Resource Development launched Aakash 1 on October 5, 2011.
- The advanced version of low cost tablet called Aakash-2 was launched by the Hon'ble President of India on the occasion of National Education Day i.e. 11th November, 2012.
- The Mission is now working towards the development of Aakash
   IV. To know more about the Aakash Project visit http://aakashlabs.org/.

#### **NMEICT- VIRTUAL LABS**

- To complement the NPTEL e-Content being provided to engineering colleges, Virtual Labs project has been initiated under NMEICT. This is a joint project of twelve participating institutes, being nationally coordinated by IIT Delhi. The basic aim of this project is to design and develop Virtual Lab in various areas of Science and Engineering in order to benefit maximum number of students. The Virtual Labs essentially comprises a user-friendly graphical front-end, working in synchronization with a backend, possibly consisting of a simulation-engine running on a server or actual measurement data or a remotely triggered experiment.
- VirtualLabMainPage(visit http://iitd.vlab.co.in/index.php# or www.vlab.co.in)
- Virtual Lab does not require any additional infrastructural setup for conducting experiments at user premises. One computer terminal with broadband Internet connectivity is all that is needed to perform the experiments remotely. Over hundred Virtual Labs are currently ready for use. These labs were dedicated to the nation on 23 February 2012. Over 50,000 students, (in approximately 150 colleges) have used the Virtual Labs and have provided user-feedback

#### NMEICT: E-YANTRA

#### ROBOTICS IN HIGHER EDUCATION

- e-Yantra is an initiative to incorporate Robotics into engineering education
  with the objective of engaging students through exciting hands-on
  application of math, computer science, and engineering principles, in order
  to turn them into engineers who can support a rapidly growing economy.
- The goal of e-Yantra is to enable effective embedded systems and Robotics education across engineering colleges in India, by Providing training for teachers and students -- through workshops where participants are taught basics of embedded systems and programming;
- Engaging teachers and students in hands-on experiments with robots -through competitions where participants are given robots to implement a
  solution; and
- Helping colleges to set-up Robotics labs/clubs by awarding a basic set of robots and expert advice to colleges, facilitating setting up of labs, in addition to training their teachers through workshops.
- Visit http://www.e-yantra.org to know more about the project and access contents

#### NMEICT: EDUCATIONAL RESOURCE PLANNING (ERP) MISSION

- ERP mission with IIT Kanpur as lead institute in collaboration with other partners in this project AMU (Aligarh), AVV (Kochi), DEI (Agra), IGNOU (Delhi), IIT Roorkee, JMI (Delhi), NIT Hamirpur, and SMVDU (Jammu), proposes to build, deploy and manage web based software system for use of Indian academic institutes. IIT Kanpur has developed a learning management system (LMS) Brihaspati and the other modules of ERP system are being built around it. Major modules developed are- online admission system, e-portfolio, project management, general accounting system, payroll generation within a institute, purchase and inventory management, library automation, online election management and web hosting management system.
- Visit http://202.141.40.218/~brihaspati/edrp\_portal to know more about the project.

#### **NMEICT: PEDAGOGY PROJECT**

- This project envisages to systematically design and develop learner-centric curricula, suitable for outcome-based learning for 4 year degree programmes in six major engineering disciplines. Each curriculum document are primarily meant for students, telling them what knowledge, skills and attitudes they should be able to demonstrate on completion of each course, where to find the necessary learning resources (in addition to approximately 80 pages of in-built course notes) and also providing them with opportunities for self assessment (around 120 125 practice problems / assignments with solutions). Used innovatively, these documents can promote self and group learning.
- Also faculty members, in particular, those who may have to teach such a course for the first time, are likely to find these documents extremely useful.
- Pedagogy Project Website (http://www.ide.iitkgp.ernet.in/Pedagogy1/pedagogy\_main.jsp)

#### **NMEICT: NATIONAL DIGITAL LIBRARY (NDL)**

The National Digital Library (NDL) under the NMEICT has taken up a mammoth task of collating and harvesting all the digitized and digital content available across the educational institutions in the country and indexing and hosting them in the National Digital Library Server to facilitate search and access to open content through a single window.

Visit for more details: https://ndl.iitkgp.ac.in/

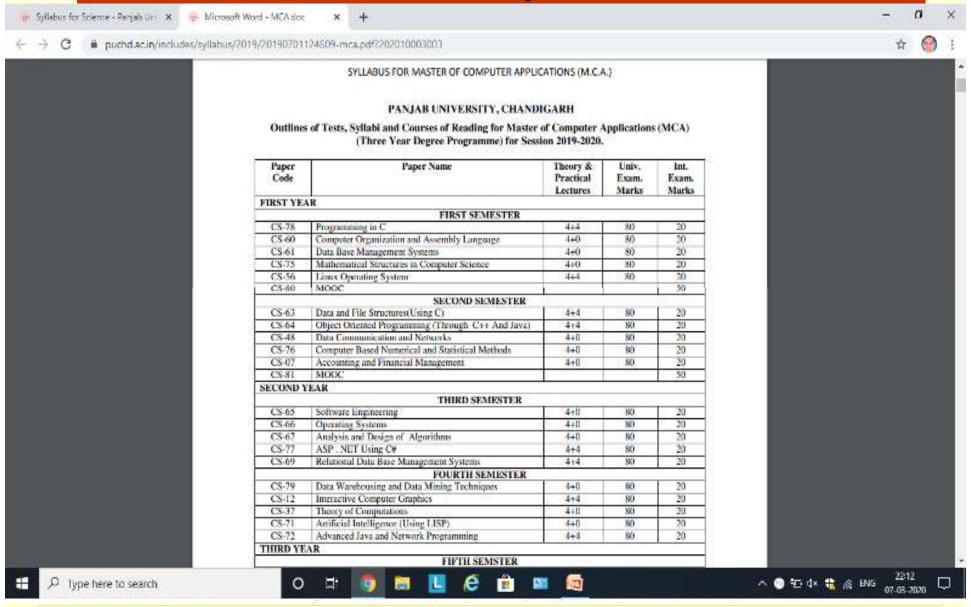
#### DIKSHA

(https://diksha.gov.in/)





## **Example**



#### Virtual Labs

(http://www.vlab.co.in/index.php



#### Virtual Labs

## (http://www.vlab.co.in/index.php

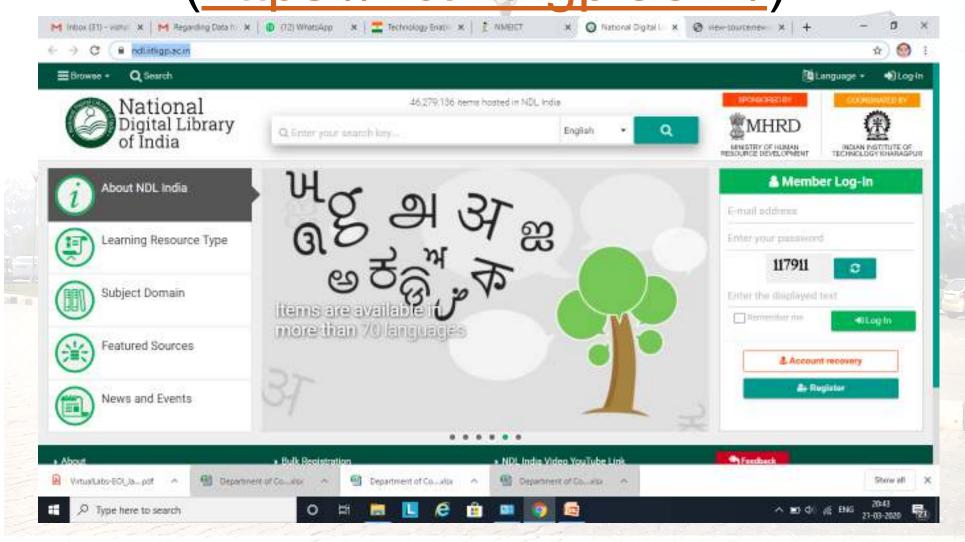
Virtual Labs project is an initiative of Ministry of Human Resource Development (MHRD), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT). This project is a consortium activity of twelve participating institutes and IIT Delhi is coordinating institute. It is a paradigm shift in ICT-based education. For the first time, such an initiative has been taken-up in remote-experimentation. Under Virtual Labs project, over 100 Virtual Labs consisting of approximately 700+ web-enabled experiments were designed for remote-operation and viewing. The intended beneficiaries of the projects are:All students and Faculty Members of Science and Engineering Colleges who do not have access to good lab-facilities and/or instruments.

High-school students, whose inquisitiveness will be triggered, possibly motivating them to take up higher-studies. Researchers in different institutes who can collaborate and share resources.

Different engineering colleges who can benefit from the content and related teaching resources.

Virtual Labs do not require any additional infrastructural setup for conducting experiments at user premises. The simulations-based experiments can be accessed remotely via internet.

## National Digital Library(NDL) (https://ndl.iitkgp.ac.in/)



# About National Digital Library(NDL) (https://ndl.iitkgp.ac.in/)

Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology (NMEICT) has initiated the National Digital Library of India (NDL India) pilot project to develop a framework of virtual repository of learning resources with a single-window search facility. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time. NDL India is designed to hold content of any language and provides interface support for leading Indian languages. It is being arranged to provide support for all academic levels including researchers and life-long learners, all disciplines, all popular form of access devices and differently-abled learners. It is being developed to help students to prepare for entrance and competitive examination, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform interlinked exploration from multiple sources. The pilot project is devising a framework that is being scaled up with respect to content volume and diversity to serve all levels and disciplines of learners. It is being developed at Indian Institute of Technology Kharagpur.

#### Shodh Shuddhi

(https://pds.inflibnet.ac.in/)



# About Shodh Shuddhi (https://pds.inflibnet.ac.in/)

Based on the recommendation of Sub-Committee, National Steering Committee (NSC) of eShodh Sindhu., The MHRD, Govt of India has initiated a programme "Shodh Suddhi" which provides access to Plagiarism Detection Software (PDS) to all universities/Institutions in India since Sept 1, 2019. 1000+ institutions are identified which includes

- Central Universities
- State Universities
- Deemed to be University
- Private Universities
- Centrally funded Technical Institutions(CFTIs)
- Inter University Centre (IUCs) of UGC

Under this initiative, URKUND a Web Based Plagiarism Detection Software system is being provided to all Users of universities/Intuitions in the country. This initiative is formally launched by Honorable Minister of Human Resource Development (HRD) on September 21, 2019.

### E-Shodh Sindhu

(https://ess.inflibnet.ac.in/)



#### About e-Shodh Sindhu

## (https://ess.inflibnet.ac.in/)

Based on the recommendation of an Expert Committee, the MHRD has formed e-ShodhSindhu merging three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium. The e-ShodhSindhu will continue to provide current as well as archival access to more than 15,000 core and peer-reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions including centrally-funded technical institutions, universities and colleges that are covered under 12(B) and 2(f) Sections of the UGC Act.

## e-Shodh Sindhu

## (https://ess.inflibnet.ac.in/)

#### **Aims and Objectives**

The main objective of the e-ShodhSindu: Consortia for Higher Education E-Resources is to provide access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rates of subscription. The major aims and objectives of the e-Shodh Sindhu are as follows:

- Setting-up e-ShodhSindu: Consortia for Higher Education E-Resources by augmenting and strengthening activities and services offered by three MHRD-funded Consortia;
- Develop a formidable collection of e-journals, e-journal archives and e-books on perpetual access basis;
- Monitor and promote usage of e-resources in member universities, colleges and technical institutions in India through awareness and training programmes;
- Provide access to subscription-based scholarly information (e-books and e-journals) to all educational institutions;
- Provide access to scholarly content available in open access through subject portals and subject gateways;
- Bridge digital divide and move towards an information-rich society;
- Provide access to selected e-resources to additional institutions including open universities and MHRD-funded institutions that are not covered under existing consortia;
- Take-up additional activities and services that require collaborative platform and are not being performed by existing Consortia; and
- Moving towards developing a National Electronic Library with electronic journals and electronic books as its major building blocks.

## IRNIS INDIAN RESEARCH INFORMATION NETWORK SYSTEM

(http://irins.org/irins/)



### **About IRNIS**

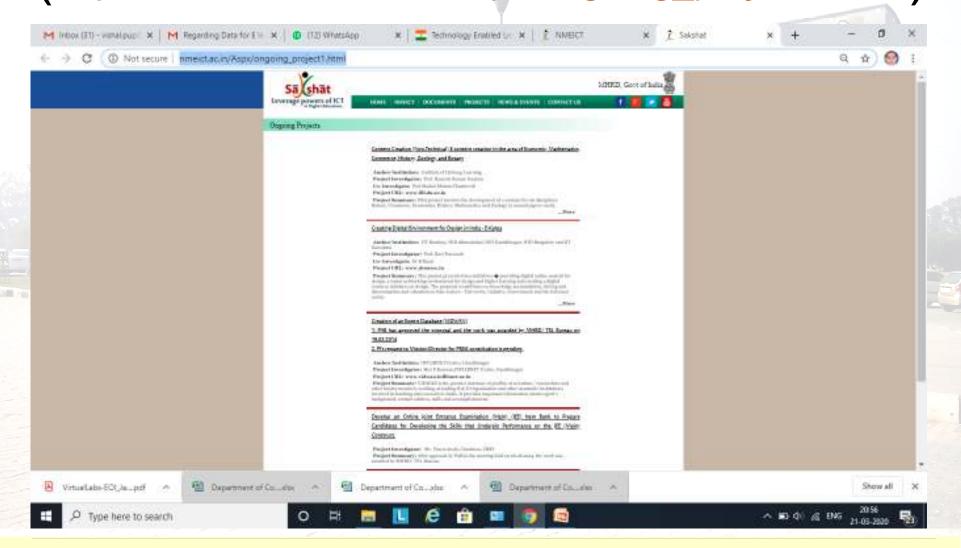
## (http://irins.org/irins/)

IRINS is web-based Research Information Management (RIM) service developed by the Information and Library Network (INFLIBNET) Centre in collaboration with the Central University of Punjab. The portal facilitates the academic, R&D organisations and faculty members, scientists to collect, curate and showcase the scholarly communication activities and provide an opportunity to create the scholarly network. The IRINS is available as free software-as-service to the academic and R&D organisations in India.

The IRINS would support to integrate the existing research management system such as HR system, course management, grant management system, institutional repository, open and commercial citation databases, scholarly publishers, etc. It has integrated with academic identity such as ORCID ID, ScopusID, Research ID, Microsoft Academic ID, Google Scholar ID for ingesting the scholarly publication from various sources.

## Ongoing Project @ NMEICT

http://www.nmeict.ac.in/Aspx/ongoing\_project1.html



#### **Important Links to explore**

http://www.nmeict.iitkgp.ac.in/ https://www.it.iitb.ac.in/nmeict/home.html http://www.nmeict.iitb.ac.in/nmeict/ http://www.nmeict.iitb.ac.in/nmeict/wsmng/allrc.php https://www.youtube.com/channel/UChE8Eu 8XZ-9cK F9ybPr-Q https://mhrd.gov.in/technology-enabled-learning-0 http://indiascienceandtechnology.gov.in/st-visions/nationalmission/national-mission-education-through-ict-nmeict https://www.drishtiias.com/daily-updates/daily-newsanalysis/nmeict http://www.mnnit.ac.in/index.php/home/357-nmeict http://www.nmeict.iitb.ac.in/nmeict/empteachers/newrc.php https://www.iitbombayx.in/

## THANKS....

Your Queries are welcome!

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