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Secretary



Ministry of Human Resource Development
Department of Higher Education
Government of India


FOREWORD

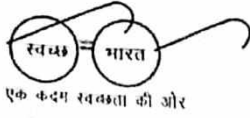
The quality and access to higher education has been a subject of intense concern to all of us. The advancements in digital technologies are transforming the way educational resources are being created, disseminated and accessed across the world. Use of digital technologies in all aspects of higher education has also received a major push in India. This in turn helps the quality improvement & accessibility of Higher Education to large part of students as well as up-skilling of the teachers across the country. Digital technologies have also greatly impacted the management and governance of the institutions as well as the accreditation and ranking of the Higher Education Institutions (HEIs).

Department of Higher Education, Ministry of Human Resource Development, has undertaken many initiatives for exploiting the digital technologies in improving the quality & accessibility in Higher Education as well as better tools for accreditation and grading of educational institutions.

Finally, many new frontline technologies like Artificial Intelligence, Machine Learning, Autonomous Systems, Cognitive Systems, etc are emerging and these are going to give many new opportunities for all of us to further improve the quality & accessibility in higher education.

I sincerely believe that this Handbook on "Digital Initiatives in Higher Education" will help you in further disseminating and getting the benefits from these initiatives to improve the learning outcomes of not only the students but also the lifelong learners.


R. SUBRAHMANYAM



सूचना का
अधिकार

Dr. N. Saravana Kumar
Joint Secretary

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GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
DEPARTMENT OF HIGHER EDUCATION
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PREFACE

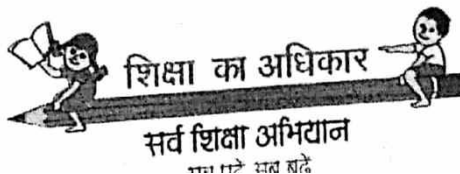
The use of Information and Communication technology (ICT) has great potential in improving the quality of education imparted and widening the access of education throughout the country. For this purpose, the Department of Higher Education, Ministry of Human Resource Development (MHRD) has undertaken many initiatives under 'National Mission on Education through Information and Communication Technology' (NMEICT) project. 'Study Webs of Active-Learning for Young Aspiring Minds' (SWAYAM), SWAYAM Prabha, National Digital Library, e-Yantra and many other initiatives are helping the students as well as teachers across India in their up-skilling as well providing them quality educational resources. In addition, these efforts will be leading to a great repository of knowledge, tools and enablers that can not only impart quality education and accessibility but also excite creativity and innovation in a billion minds, particularly young students, catalyzing them to attain their true potential in building the nation.

Technology is in a position to find a fine balance between the two competing demands on resources, ie. Equal Access and Excellence. In spite of the potential for technology to reach out to the untouched areas and the positive ecosystem (millennial population, improved connectivity), many regions / areas remain untouched with these digital initiatives.

To reach out to Higher Educational Institutions (HEIs) in such regions and states which may not be much aware of these digital initiatives, an attempt is being made in the form of a Handbook on Digital Initiatives in Higher Education. This will provide all critical details about the various Projects and will help the Higher Educational Institutions to exploit these projects to improve the learning outcomes.

Any feedback for improving this handbook will be always welcome.


(Dr. N. Saravana Kumar)



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National Mission on Education through ICT (NMEICT)

To improve the learning outcomes and improve the access and quality of learning, Technology offers solutions, in the form of digital education. National Mission on Education through ICT (NMEICT) is a major initiative of Ministry of Human Resource Development (MHRD) to infuse digital education solutions to improve the access to quality contents and also to improve the learning outcomes.

Even though various initiatives have been taken up under NMEICT programme, the major currently ongoing initiatives like SWAYAM, SWAYAM Prabha, National Digital Library (NDL), e-Yantra, FOSSE, Spoken Tutorials, and Virtual Labs are being implemented by various higher educational institutions.

SWAYAM
(swayam.gov.in)

1. The 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) is India's own MOOCs platform offering free online courses on almost all the disciplines. A programme initiated by Government of India, designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality has the objective to ensure access to the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for learners 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 indigenously developed IT / Cloud platform that facilitates hosting of all the courses, taught in classrooms from 9th standard till Post-Graduation to be accessed by Anyone, Anywhere, Anytime. All the courses are interactive, prepared by more than 1000 reputed teachers in the country and are available free of cost.
2. 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) online discussion forum for clearing the doubts. The learning experience has been enriched by using audio-video and multi-media and state of the art pedagogy / technology. Nine National Coordinators are involved in production and running of courses. University Grants Commission (UGC) for Post-Graduation Non-Technical Education, Consortium for Educational Communication (CEC) for Under-Graduate Non-Technical Education, National Project for Technology Enabled Learning (NPTEL) for Engineering, National Council of Educational Research and Training (NCERT) for school education, National Institute of Open Schooling (NIOS) for out of School Education, Indira Gandhi National Open University (IGNOU) for Diploma & Certificates courses through distance learning, National Institute of Technical Teachers Training and Research (NITTTR) for technical teachers training and Indian Institute of Management (IIM) Bangalore for Management Studies, All India Council of Technical Education (AICTE) for Annual Refresher Programme in Teaching (ARPIT) courses and courses from foreign universities.
3. SWAYAM was formally launched on 09.07.2017 by the Hon'ble President of India. Till date, about 2200 Courses have been offered through SWAYAM in which about 500 courses are on offer for January 2019 semester. More than 50 Lakhs students have registered on SWAYAM platform and there are more than 1 crore enrollments in various courses. The framework for transfer of credits (upto a maximum of 20%) has been put in place by AICTE and UGC by bringing out necessary regulations. With this, the students studying in any Institution can transfer the credits earned through the SWAYAM Courses into their academic records. So far, about 122 Institutions / Universities have recognized the SWAYAM Courses for credit transfer and many others are in the process of doing the same. Under a new initiative Annual Refresher Programme in Teaching (ARPIT), the Faculty Development Programme (FDP) of higher education faculty is also being offered through MOOCs under SWAYAM platform, for training maximum number of faculty and also to expose the teachers to technology enabled learning. Fifteen lakh untrained school teachers are also getting trained under D.El.Ed. programme of NIOS delivered through SWAYAM.
4. The Online Courses delivered on SWAYAM, are expected to reduce the digital divide by providing access to best content to all. By integrating SWAYAM MOOCs with

conventional education, the learning outcomes of students are expected to improve in the coming days and can prove to be a game changer in the education sector.

Action desired from the University / Institute / College:

1. Every Institute should coordinate with UGC / NPTEL for starting “**LOCAL CHAPTER (Digital Learning Monitoring Centre)**”, to publicize and help the faculty and students. This will provide a local platform for discussion amongst students and faculty about enrolling of students, facilitating credit transfer, suggesting new courses, exam registration and helping students during the delivery of courses. Any clarification or coordination as required would be done by UGC / NPTEL.
2. Each University is requested to get the SWAYAM courses approved through their Academic Councils / Senate , for two following things on every SEMESTER basis
 - » Motivating students to register for courses in SWAYAM - to access to quality contents, which will help in ensuring a blended learning mode; and
 - » Allow CREDIT TRANSFER upto 20 % to those students who are willing to opt for learning the selected SWAYAM courses. (UGC and AICTE have issued regulations to facilitate credit transfer upto 20 %)
 - » Institute can decide to accept the SWAYAM course for extracurricular /extra academic courses.
3. Extensive Publicity and orientation about the SWAYAM courses and benefits to the students by workshops and seminars, through the Local Chapters.

Action by Faculty / Teachers:

1. The faculty can facilitate effective teaching - both On Campus & Online. The role of faculty would change into Facilitator role, by acting as a mentor to assist the students in online learning.
2. SWAYAM course material may be used for Blended Learning or Flip Classes - which is a mix of classroom & online learning.
3. Students should be motivated and supported with handholding, for registering in SWAYAM portal and enrolment for various SWAYAM courses.
4. Talented Teachers across the Universities to be encouraged to produce and offer courses for SWAYAM. They need to approach the concerned National Coordinator under SWAYAM.
5. Funding support for creating & running MOOCs courses - 13.5 Lakhs for creation of one MOOCs course and Rs. 1.2 Lakh for running of one course.

SWAYAM MOOCs Guidelines & Framework:

1. Credit Transfer facility up to 20% enabled by UGC/ AICTE- 'Credit Framework for online learning courses through SWAYAM Regulation 2016'. (ANNEXURE-1& 2)
2. Amendment/Addition MOOCs Guidelines on 1st June, 2017 - standardizing the content delivery and for systematic development of the online Courses for 'Regulation 2016' (ANNEXURE-3)
3. Financial Norms for the Development of MOOCs for SWAYAM (ANNEXURE-4)
4. Under Career Advancement Scheme (CAS) of UGC - creation of MOOCs or training through MOOCs is one of the eligibility criteria for promotion. (ANNEXURE-5)
5. UGC approved Annual Refresher Programme In Teaching (ARPIT) courses delivered on SWAYAM equivalent to one Refresher course for the purpose of Career Advancement. (ANNEXURE-6 (i)& (ii))
6. Contact details of National Coordinators and Popular Courses (ANNEXURE-7)

ContactDetails : Swayam Helpline(18001219025)

Email ID : support@swayam.gov.in
Shri Harshvardhan Mathpal, Consultant Email - harsh.jc@nmeict.ac.in

SWAYAM Prabha

(www.swayamprabha.gov.in)

1. SWAYAM PRABHA is an initiative to provide 32 high quality educational channels through DTH (Direct to Home) across the length and breadth of the country on 24X7 basis. This would enable to deliver e-education in a most cost effective & inclusive manner. The Department of Space has allotted two GSAT-15 transponders for the same. Hon'ble President of India has launched the SWAYAM Prabha on 9th July, 2017. The subscribers of free DTH service of Doordarshan (Free dish) and Dish TV (Zee) would be able to view these Educational channels using the same Set Top Box and TV. No additional investment would be required. These channels are also available on Jio mobile TV app. Other service providers are also considering the Ministry's proposal to provide free access. The contents are prepared by different MHRD agencies like CEC, IGNOU, IITs, NIOS and NCERT.

2. The DTH Channels cover the following:

- Higher Education: Curriculum-based course contents at post-graduate and undergraduate level covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc. All courses would be certification-ready in their detailed offering through SWAYAM, the platform being developed for offering MOOCs courses.
- IIT PAL: To assist the student in the classes 11 and 12 aspiring to join IITs by encouraging scientific thinking and conceptual understanding critical to answer the 'tough' questions of JEE Advanced. This initiative is lead by IIT Delhi. The 4 channels are for Physics, Chemistry, Mathematics and Biology.
- School education (9-12 levels): modules for teacher's training as well as teaching and learning aids for children of India to help them understand the subjects better and also help them in preparing for competitive examinations for admissions to professional degree programmes.
- Curriculum-based courses that can meet the needs of life-long learners of Indian citizens in India and abroad.
- Every day, there will be new content for at least (4) hours which would be repeated 5 more times in a day, allowing the student to choose the time of his convenience.
- SWAYAM PRABHA has been integrated on UMANG App also.

Action desired from the University / Institute / College

1. Each Institute should install DTH (Direct to Home) facility and TV, for viewing SwayamPrabha channels. All the 32 channels are freely available on DD Free Dish, Dish TV (Zee TV) and Jio Mobile App.
2. Depending on the Schedule of various courses / programmes, students can be motivated or gathered to watch the quality contents being provided through SwayamPrabha channels.
3. This would ensure access to quality educational contents to students in institutes located in remote areas, where internet connectivity is still not satisfactory.

Contact : +91-7923268347
(Available on Monday to Friday from 9:30 AM to 6:00 PM)

Email ID : Prof. Mangla Sunder Email: mangal@iitm.ac.in
Shri Amit Sharma, Consultant, Email: amit.co@nmeict.ac.in
swayamprabha@inflibnet.ac.in

National Digital Library (NDL)

(<https://www.ndl.gov.in>)

- The National Digital Library of India (NDLI) project has been entrusted to IIT Kharagpur to develop the overall framework of a facility that can provide a single-window access to learners for e-content resources. The vision is to build NDLI as a National Knowledge Asset that should become the key driving force for education, research, innovation and technology economy in India. NDLI is available at <https://www.ndl.gov.in>. It is also available as Mobile App (Android and iOS) and on UMANG Platform. Anybody can register in NDLI at no cost. Currently, NDLI has about 200 lakh of content items and about 45 lakh of registered users.
- NDLI integrates the existing digitized and digital contents across educational and cultural institutions / bodies, publishers, etc. to provide a single-window access to different groups of users ranging across the entire population. NDLI fetches metadata ("data that provides information about other data") of the contents and store and index these metadata in its servers so that all the e-contents can be searched and accessed in the full-text by users through a single window. NDLI does not store the actual (full-text) contents in its servers; instead it gives to users links of respective content hosting sites as part of search results. Users access contents from respective content hosting sites by clicking these links.

Participant Institutions:

All Technical as well Non-Technical Institutions, Publishers, Open Educational Resource Portals

Action desired from the University / Institute / College:

- (a) Dissemination of information about this facility to students and faculty and motivating them to use the e-resources available.
- (b) Availability of Internet Connectivity: No special hardware or accessories are required to access NDLI. NDLI can be accessed from devices like PC, Laptop, Mobile devices supporting any web browser. However you will need internet connectivity to access NDLI.

(3) Individual Membership:

Once you have typed the URL (<https://www.ndli.gov.in>) of NDLI and land on the Landing page of NDLI, you will find a window on the right hand side saying 'Member Log-In'. Click on the 'Register' button whereby a Registration form will open up. Fill up all the details on the form and submit. You will soon get a validation link in your mailbox. Click the link and validate and then you can start using NDLI. From next time onwards, please use the Log-In button on the Home page for accessing NDLI.

(4) Bulk Registration for Institutions:

A person from your institute, called Institutional Nodal Person (INP), can take the responsibility of getting all the persons of the institute registered in NDLI. (S)he can get this done through the following steps:

- » List all first name, last name and email id of your users (students, faculty members, staff) in an excel file (in one row for each user) and send the file to ndl-support@iitkgp.ac.in or to rajendra.singh1310@gmail.com with a request to get these users registered
 - » NDLI person will upload this excel in NDLI system
 - » Each person (user) will soon receive his / her respective login credentials (user id and a system generated password) in his / her e-mail id. A person's NDLI account will be activated upon his/her first log-in. During this first login user will need to modify the system generated password and may all also fill his/her profile. S/he can then start using NDLI.
- (5) NDLI facilitates the uploading of in-house resources produced in your Institute by the faculty members, staff, and students into the national repository; Meta data needs to be shared.**

CONTACT : National Digital Library of India Project,
Central Library, Indian Institute of Technology Kharagpur, Kharagpur, India - 721302, Email: ndl-support@iitkgp.ac.in

PHONE : +91-3222-282435

PI/Co-PI : Prof.ParthaPartim Das, Email: ppd@cse.iitkgp.ernet.in
Shri Praveen Rai, Consultant Email: praveen.jc@nmeict.ac.in

e-Yantra
(www.e-yantra.org)

- e-Yantra is a project entrusted to IIT Bombay for enabling effective education across engineering colleges in India on embedded systems and Robotics. The training for teachers and students is imparted through workshops where participants are taught basics of embedded systems and programming. Engagement of teachers and students in hands-on experiments with robots by way of competition-event is another innovative method of problem-solving with out-of-box solutions. e-Yantra also helps colleges to set-up Robotics labs/clubs to make it a part of their routine training curriculum. More than 275 colleges across India have benefited with this initiative. All the projects and code are available on the e-Yantra web-site www.e-yantra.org as open source content.
- This unique initiative aims to create the next generation of embedded systems engineers with a practical outlook to help provide practical solutions to some of the real world problems using Robotics & Autonomous Systems.

Participant Institutions:

All Technical as well as Science Colleges and Polytechnics

Action desired from the University / Institute / College:

1. Dissemination of information about this facility to students and faculty.
2. e-Yantra Lab Setup Initiative (eLSI) is a college level program under which colleges are helped to setup robotics labs. It addresses infrastructure creation and teacher training – to create an eco-system at the colleges to impart effective engineering education using “Project Beased Learning.” eLSI provides: (i) guidance and support for establishing robotics labs - three robotic kits are given to each participating college on lab setup and (ii) Two-phased training for teachers. An Institution registers with a mail to “support@e-yantra.org” with a request to set up an e-Yantra Lab. A college has to commit Rs 2 lakhs towards infrastructure (under e-Yantra guidance) and commit 4 teachers to be trained from different disciplines (such as CS, EE, Civil, Mech. etc.) following which the e-Yantra process takes over. Once equipment is purchased and teachers are trained, the lab is inaugurated online and plugged into the e-Yantra eco-system. The teacher training comprises a 2-day onsite workshop close to the college. After this, there is an online 2-3 month Task Based training (TBT) based on a robot that the teachers are given by the e-Yantra project. There are other benefits to having a lab such as extended participation in the e-Yantra Robotics Competition and participation in e-Yantra Ideas Competition that trains students in innovation. There is an annual e-Yantra Symposium at IIT Bombay where teachers from the labs congregate at IITB to learn of latest best practices and experiences in other labs.
3. e-Yantra Robotics Competition (eYRC) is a unique annual competition for undergraduate students in science and colleges. Selected teams are given a robotic kit complete with accessories and video tutorials to help them learn basic concepts in embedded systems and microcontroller programming. Abstractions of real world problems are assigned as "themes" which are then implemented by the teams using the robotic kits. The winners of this competition are eligible for summer internship in IIT Bombay. Students are to be encouraged to participate.

The following Youtube link gives a brief idea of e-Yantra. "e-Yantra – Competition with a difference" <https://youtu.be/izDTFhVExpY>

4. e-Yantra Ideas Competition (eYIC). e-Yantra labs volunteer upto 4 proposals for solving local problems through automation. Shortlisted proposals are given a go-ahead to build their solutions under our mentorship using the lab infrastructure developed under e-Yantra. Innovations are from a variety of domains including healthcare, agriculture, smart cities, etc. See an overview of the e-Yantra Ideas Competition here: <https://www.youtube.com/watch?v=WB-qftXeQVg>

Contact : ERTS Lab
1st Floor, KReSIT Building, IIT Bombay, Powai,
Mumbai - 400076, Maharashtra

Email ID : support@e-yantra.org

PI/Co-PI : Prof KaviArya, IIT Bombay Email- kavi@cse.iitb.ac.in
Shri Praveen Rai, Consultant Email-praveen.jc@nmeict.ac.in

VIRTUAL LABS

(www.vlab.co.in)

This initiative provides remote-access to Labs in various disciplines of Science and Engineering. Students can also strengthen their concepts by performing Virtual labs experiments at a place and time of their choice, outside lab hours. These Virtual Labs would cater to the students at the under-graduate level, post-graduate level as well as to research scholars. There are 12- participating institutes; IIT Delhi, IIT Bombay, IIT Madras, IIT Guwahati, IIT Kharagpur, IIT Kanpur, IIT Roorkee, NITK Surathkal, COE Pune, Amrita VishwaVidyapeetham, and Dayalbagh Educational Institute Agra. IIT Delhi is the Coordinating Institute.

Participant Institutions:

All Technical Institutions as well as Science Colleges

Action desired from the University / Institute / College:

1. Dissemination of information about this facility to students and faculty.
2. Good Internet Connectivity: 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
3. There is no financial liability of any party for using Virtual Labs. It is free to use.
4. Explore to become Nodal Centre for conducting training & Workshops on Virtual labs: The Institute should be a Central, State University or Institute / college approved by AICTE/UGC. The Institute should provide a designated / common lab space having 30 PCs or more with minimum 1 Mbps internet broadband connection and a multimedia projector. A Nodal Center Coordinator for the Virtual labs should be nominated by the Head of the Institute (Director/Principal).

CONTACT : WIRELESS RESEARCH LAB
Room No - 206/IIA, Bharti School of Telecom, IIT Delhi,
HauzKhas, New Delhi-110016

Email ID : support@vlab.co.in

Phone (L) : 011-26582050

PI/Co-PI : Prof RanjanBose, IIT, Delhi (rbose.iitd@gmail.com)
Shri Praveen Rai, Consultant (praveen.jc@nmeict.ac.in)

FOSSEE

(<https://fossee.in>)

The FOSSEE (Free/Libre and Open Source Software in Education) Project, promotes the use of FLOSS (Free/Libre and Open Source Software) tools to improve the quality of education in our country. It aims to reduce the dependency on proprietary software in educational institutions. It is being implemented by IIT Bombay.

FOSSEE promotes the use of the state of the art FLOSS in teaching and research. Some of these tools are Scilab, Python, R, DWSIM, OpenModelica and OpenFOAM. New FLOSS tools, such as eSim and upgrade existing tools are also developed. It also promotes open source hardware, such as Arduino. For more details please visit: <https://fossee.in/>. These tools are promoted by encouraging students and faculty to use them in education and research through the activities listed below:

- Textbook Companion** : Porting the solved examples from standard textbooks to one of the FLOSS supported by FOSSEE like Scilab, Python, OpenModelica and R.
- Lab Migration** : Migration of Labs in educational institutions to FLOSS only labs. Currently, FOSSEE supports Lab Migration under the following software: Scilab, eSim, OpenFOAM and DWSIM.
- Conferences and Workshops** : We conduct various conferences, seminars and remote workshops to introduce FLOSS to users.
- Niche software activities** : Toolbox development for Scilab, Flowsheeting with DWSIM, Case Study with OpenFOAM, Circuit Simulation with eSim and Power System Simulation using OpenModelica and OpenIPSL.
- Hardware activities** : Arduino, OpenPLC using Atmel and Raspberry Pi, and PCB for eSim
- Massive blended training** : Connect with Remote Centres and help train several thousands of teachers on Moodle, Scilab, Python, R, etc.
- Participant Institutions** : All Technical and Science Colleges, and also colleges that do data analysis.

Action desired from the University / Institute / College:

1. Dissemination of information about this initiative to students and faculty.
2. The FOSSEE team invites educators/researchers to partner and develop more such tools.

CONTACT : The FOSSEE Team, CFD – Lab, Annex Building, Below HSS Dept.,
Opp. Metallurgical Dept., IIT Bombay, Powai, Mumbai – 400076, India

Email ID : The FOSSEE Team, IIT Bombay, (info@fossee.in)

Phone (L) : (+91) 22 2576 4133

PI/Co-PI : Prof KannanMoudgalya, IIT Bombay Email- kannan@iitb.ac.in and
Prof. PrabhuRamachandran, IIT Bombay
Shri Praveen Rai, Consultant Email-praveen.jc@nmeict.ac.in

SPOKEN TUTORIAL

(<https://spoken-tutorial.org>)

This project helps everyone learn various Free/Libre and Open Source Software all by oneself. The self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning, can learn from any place, at any time and in a language of their choice. Internet is not required to use Spoken Tutorials. This project is being implemented by IIT Bombay.

- » Even those students who are not fluent in English can learn from Spoken Tutorials through dubbing available in all 22 languages of the Schedule 8 of the Constitution, such as Hindi, Assamese, Bengali, Bodo, Gujarati, Kannada, Kashmiri, Malayalam, Manipuri, Marathi, Nepali, Oriya, Sanskrit, Punjabi, Tamil, Telugu, and Urdu.
- » Even though one may listen to Spoken Tutorials dubbed in our languages, one would not lose the employment potential as all the videos are in English.
- » One can self-learn from Spoken Tutorials, as these are created for self-learning, and also that Internet is not required to use it.
- » One can, through Spoken Tutorials, learn (1) programming languages, such as C, C++, Java and Python (2) OS software like Linux, Bash and Awk (3) web development software like PHP/MySQL, Drupal and Joomla (4) scientific and simulation software, such as Scilab, R, DWSIM, OpenModelica, OpenFOAM, Osdag and eSim (5) office productivity software LibreOffice (6) graphic and animation software, such as Inkscape, GIMP, Blender, and Inkscape.

Participant Institutions:

Engineering, Polytechnic, Arts, Science, and Commerce, Colleges.

Action desired from the University / Institute / College:

1. Dissemination of information about this resource to students and faculty, encouraging them to use this, as AICTE/UGC approved MOOCs for ICT lab/practical courses/papers.
2. Disseminate the fact that institutions should register for annual membership with IIT Bombay, and have any number of students appear in any number of tests, and get free certificates when they pass online tests.
3. Disseminate the fact that the Spoken Tutorial team provides Maternal, infant and young child nutrition, thereby preventing Malnutrition.

CONTACT : Spoken Tutorial Project, TCS Lab, Behind CAD Centre, IIT Bombay,
Powai, Mumbai – 400076, Landline: 022 2576 4229.

Email ID : Spoken Tutorial Project, IIT Bombay (contact@spoken-tutorial.org)

PI/Co-PI : Prof Kannan Moudgalya, IIT Bombay - kannan@iitb.ac.in
Shri Praveen Rai, Consultant (praveen.jc@nmeict.ac.in)

NATIONAL ACADEMIC DEPOSITORY

(www.nad.gov.in)

National Academic Depository (NAD) is an online store house of academic awards (degrees, diplomas, certificates, mark sheets etc.) lodged by the academic institutions / school boards / eligibility assessment bodies in a digital format. NAD is on 24X7 online mode for making available academic awards and help in validating their authenticity, their safe storage and easy retrieval.

National Academic Depository comprises of two interoperable digital depositories viz. CDSL Ventures Limited (CVL) and NSDL Database Management Limited (NDML). The University Grants Commission (UGC) is the authorized implementing body of NAD. The details regarding NAD are available at www.nad.gov.in.

Students can now access their academic awards online from anywhere & at any time. Students can also authorize verification seeking entities to view & verify the academic certificates. NAD is permanent record of academic awards and there is no risk of losing, spoiling or damaging of academic awards. NAD is also an effective deterrence to fake and forged paper certificates.

Participant Institutions:

1. Central Educational Institutions comprising Central Universities, Central Higher Educational Institutions & institutions empowered by an Act of Parliament to grant degrees, Central Higher Educational Institutions awarding diplomas
2. State Universities and Deemed to be Universities
3. Institutions empowered by an act of State Legislature to grant degrees
4. Private Universities approved by University Grants Commission
5. Institutions approved by the Ministry of Skill Development & Entrepreneurship (MSDE) for participating in NAD.
6. Central Board of Secondary Education (CBSE);
7. Other School Boards
8. Central eligibility test conducting bodies i.e. UGC for National Eligibility Test (NET) and CBSE for Teacher Eligibility Test (TET).

Stakeholders of NAD:

1. Academic Institutions/School Boards/Eligibility assessment bodies
2. Students and other award holders
3. Verification seeking entities i.e. banks, employer companies (domestic and overseas), Government entities, academic institutions/universities/boards/eligibility assessment bodies (domestic and overseas) etc.

Action desired from the University / Institute / College:

Roles & Responsibilities of Academic Institutions (AIs)-

The AIs shall:

1. Enter into a Service Level Agreement (SLA) with either of the two depositories to join NAD.
2. Provide certificate templates, data masters etc. to the depositories
3. Provide data of academic awards for lodging the academic awards on NAD
4. Identify staff to be trained in NAD system
5. Lodge Awards – Upload awards and seed with NAD ID
6. Verify & digitally sign data in prescribed formats – maker / checker

Roles & Responsibilities of Students-

Students shall:

1. Register on either of the depositories by providing basic registration details and obtain a unique NAD ID.
2. Submit NAD ID to AI for verification and seeding into award data
3. View & access all awards online at any time in a single account
4. Student can:
 - a. View / download digitally signed awards
 - b. Request printed copy of the certificate
 - c. Approve / reject request of any verification seeking entity for access to his / her certificate
 - d. Send copy of certificate to any verification seeking entity

NAD Statistics- as on 22.03.2019

- Total Academic Institutions on-board on NAD- 972
- Total number of Students registered on NAD- 4,97,670
- Total number of academic awards Lodged on NAD(including degrees, diplomas, marksheets etc.)- 2,99,20,140
- Number of verification seeking entities registered on NAD- 182

CONTACT : National Academic Depository Cell (NAD Cell), University Grants Commission

**Old CRS Building, Jawaharlal Nehru University, ArunaAsaf Ali Marg,
New Delhi-110067, Tele-011 26741315, 011 26742016,**

Email ID : nad.ugc@gmail.com

PLAGIARISM DETECTION SOFTWARE

MHRD intends to provide plagiarism detection software to all the Universities to facilitate easy detection of plagiarised content in the academic and research works including articles in journals and conference proceedings, chapters in books, theses, research reports, assignments, project works, lecture notes, e-text / e-content for MOOCs and LMS, etc. The plagiarism detection software / tool should compare submitted documents with database of document maintained by the producers of plagiarism detection software consisting of subscription-based resources and open access resources from primary publishers and aggregators, current and archived Internet web pages and web documents, student paper database, etc.

Participant Institutions:

All Universities (in the first phase)

Action desired from the University / Institute / College:

Dissemination of information about this facility to students and faculty.

Contact : Prof J P Singh Joorel, Director, INFLIBNET (director@inflibnet.ac.in)
Shri Praveen Rai, Consultant (praveen.jc@nmeict.ac.in)

Annual Refresher Programme in Teaching (ARPIT)

(swayam.gov.in)

The Ministry of Human Resource Development has officially launched Online Annual Refresher Programme in Teaching (ARPIT) on 13th November, 2018, a major and unique initiative of online professional development of 15 lakh higher education faculty using the MOOCs platform SWAYAM. For implementing ARPIT, 75 discipline-specific National Resource Centres (NRCs) have been identified in the first phase, which are tasked to prepare online training material with focus on latest developments in the discipline, new & emerging trends, pedagogical improvements and methodologies for transacting revised curriculum. ARPIT will be an ongoing exercise so that every year. Identification of discipline specific NRCs for 2019 is ongoing. NRCs will continuously develop new refresher module in their earmarked discipline each year. The training materials will be uploaded and made available through SWAYAM. NRC will publish the list of the faculty who have been certified. The NRCs will revolutionize professional development of faculty by catering to massive numbers by leveraging ICT and online technology platform of SWAYAM.

There would be an End Term Proctored Examination, after completion of ARPIT Course, based on which the learners (teachers) would be certified.

UGC has notified the equivalence of ARPIT as a refresher course for Career Advancement Scheme (CAS) of faculty (DO Letter No. F.2-16/2002(PS)Pt.fl.II dated 3rd December, 2018 attached).

Participant Institutions:

All Public funded Educational Institutions such as Central Universities, IISc, IUCAA, IITs, IISERs, NITs, State Universities; UGC's Human Resource Development Centres(HRDCs), National Institutes for Technical Teachers Training (NITTTRs), IIITs, IGNOU etc.

Action desired from the University / Institute / College:

- » Dissemination of information to Higher Education faculty about ARPIT initiative and UGC notification for equivalence of ARPIT as a refresher course for career advancement of faculty
- » All faculty in Higher Educational Institutions to be encouraged to join ARPIT Courses on SWAYAM.

CONTACT : Dr. Shakila T. Shamsu
OSD(NEP), Department of Higher Education, MHRD
shakilat.shamsu@nic.in

Technical Assistance : Swayam Helpline (18001219025)

Email ID : support@swayam.gov.in

GENERAL OBSERVATIONS

1. Each Institute (University / College) should nominate a tech savvy faculty as **Nodal Officer (TEL)** - TEL refers to Technology Enabled Learning
2. Nodal Officer (TEL) should organise meeting of all faculty, to be chaired by Vice Chancellor / Principal - to brief about the various digital initiatives possible to be implemented. This session should be used to enlighten the faculty about the benefits of digital initiatives, for the students.
3. Vice-Chancellor / Principal should motivate the faculty to accept the CHANGES happening in the education sphere and embrace the digital initiatives.
4. Printed Pamphlets (consisting of various digital initiatives) should be distributed to all faculty. (MHRD will help in providing the soft copy of the same)
5. Faculty should be motivated to disseminate the information on digital initiatives to the students.
6. Faculty should be motivated to take up courses in SWAYAM and ARPIT, to understand firsthand the experience of digital education. This will make the faculty to motivate the students, with conviction
7. The Local Chapters (Digital Learning Monitoring Centres) should act as Digital Learning Clubs, in discussing and disseminating the information on various digital initiatives, motivating the students to register and get enrolled, facilitating credit transfer, suggesting new courses, exam registration and helping students during the delivery of courses.