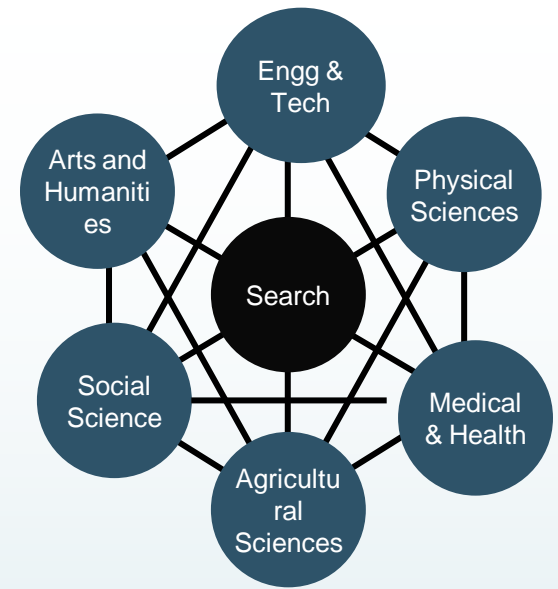


List of Presentations held on 19th March 2014

1. Integrated E-Content Portal.....	1
2. Integrated E-Content Portal(Miscellaneous Content).....	37
3. Virtual Labs (Phase II) 1.....	77
4. Virtual Labs (Phase II) 2.....	108
5. FOSSEE: Adoption of Free and Open Source Software in Education (Phase II).....	139
6. Creation of Courseware e-content Development for remaining 58 UG Subjects at an enhanced rate of Rs.34,000 per Module.....	184
7. Creation of Courseware e-content Development for remaining 58 UG Subjects at an enhanced rate of Rs.34,000 per Module.(Miscellaneous Content).....	205
8. Creation of an Expert Database (VIDWAN).....	224



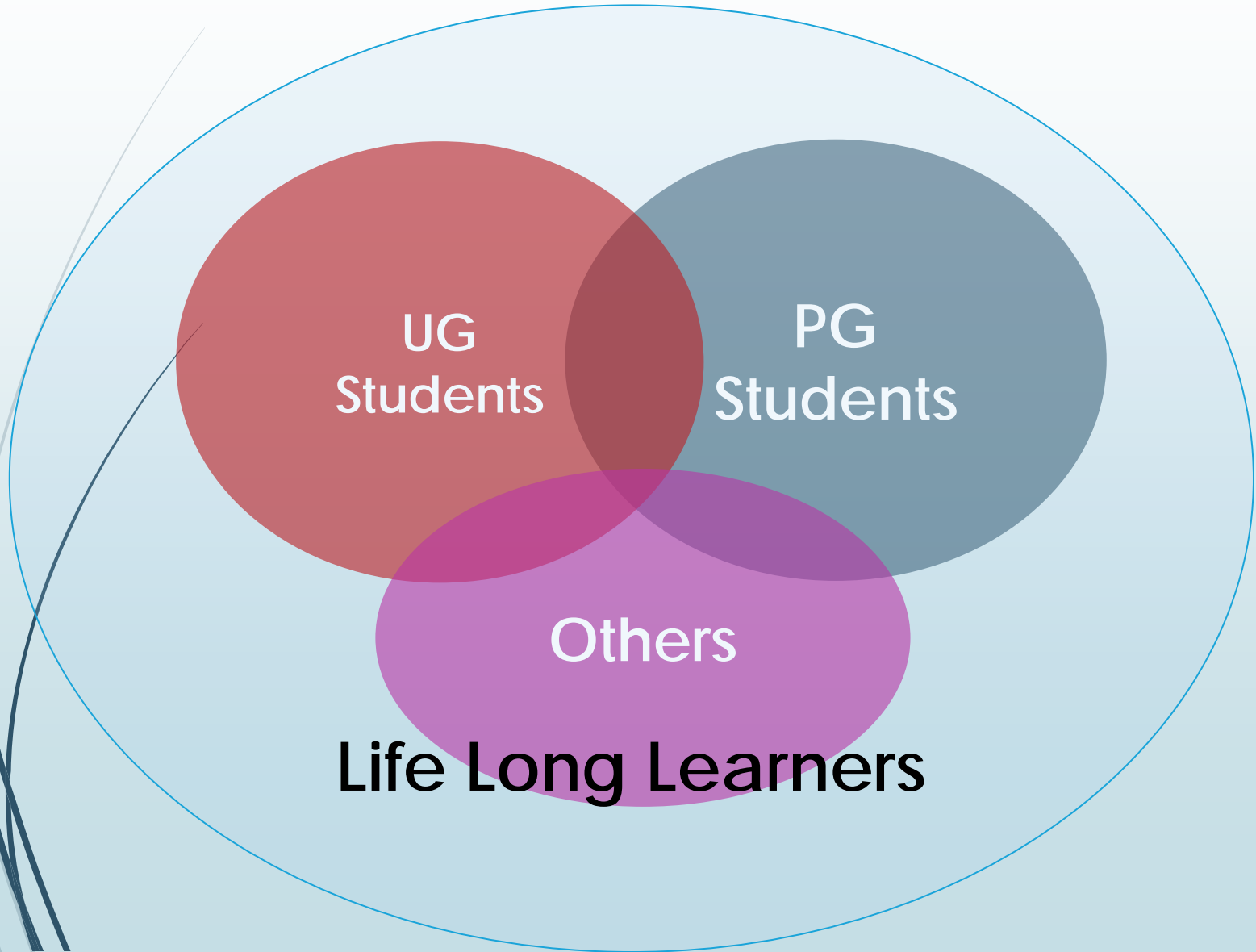
Integrated e-Content Portal

(For all completed e-content project of NME-ICT)

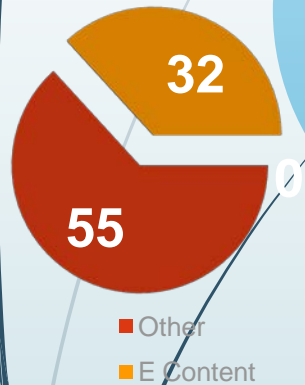
Control No.: **AEC1411201313068**

PI: Dr Jagdish Arora, Director, INFLIBNET Centre
CO-PI: Mr Yatrik Patel, Scientist-D, INFLIBNET Centre
Mr Abhishek Kumar, Scientist-C, INFLIBNET Centre

Background : Target Users



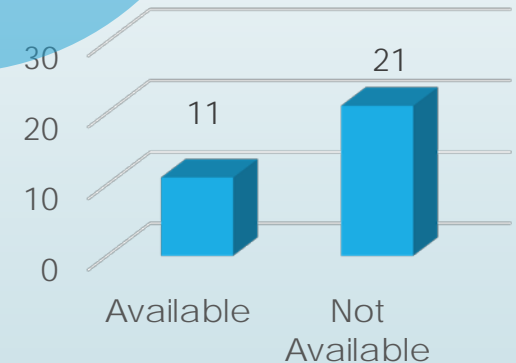
Background



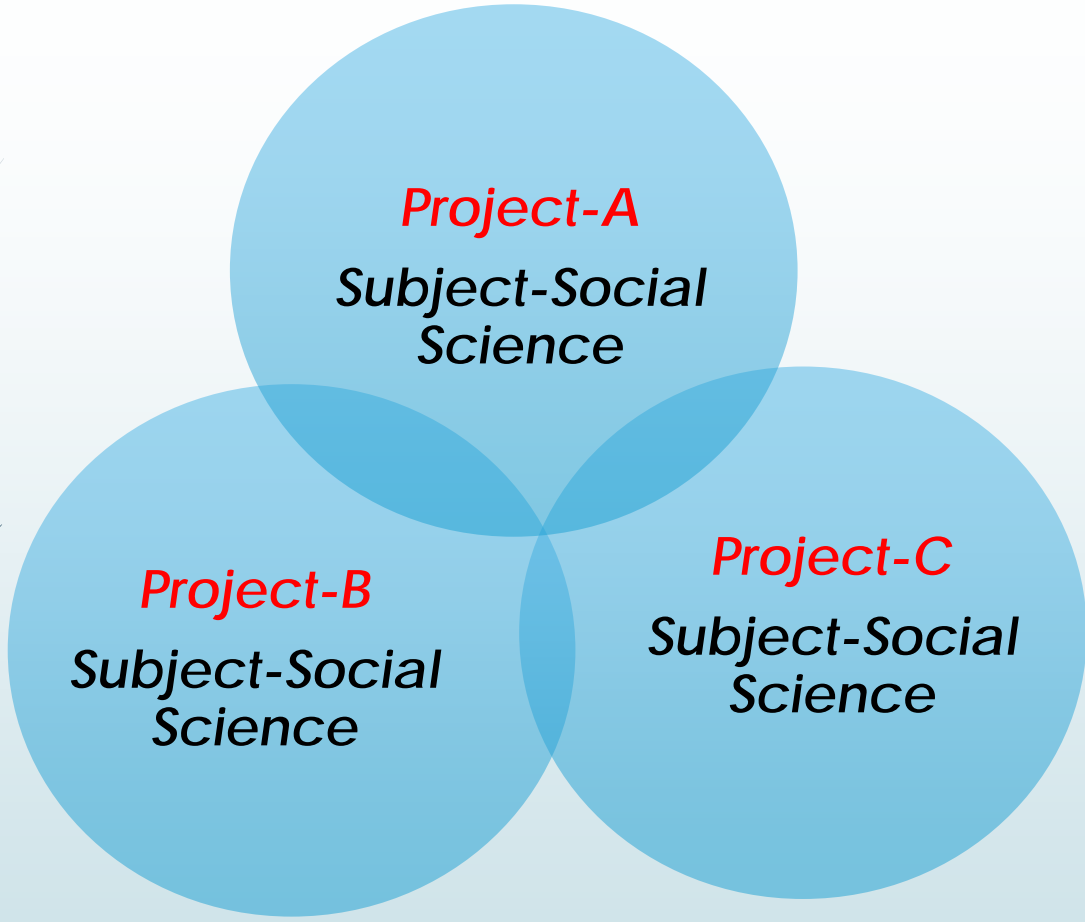
Approx. 32 projects on e-content creation powered by NME-ICT

11 such projects are having websites, 21 doesn't have URL or URLs are not accessible.

Ideally all e-content generated by NMEICT fund should be accessible through "Sakshat" for better outreach.



[*http://proposal.sakshat.ac.in/sakshatproposal/PRSGList.aspx](http://proposal.sakshat.ac.in/sakshatproposal/PRSGList.aspx)



Ideally

All e-content should be available through single point. With search-able, browse-able, indexed, search-engine friendly interface.

- Single Portal
- Assignment of Metadata
- Search Engine Optimization

Interlinking with other type of material (e-books, journals, articles, learning objects) to present one stop access to related scholarly content.

- Identification of sources (For related scholarly content)
- Metadata Linking
- Categorization and Classification

Access should be platform(browser) independent with seamless streaming.

- Browser friendly format

It is being proposed...

To collect and acquire all content distributed on different websites of respective PIs and host them on a single platform(Under Sakshat).

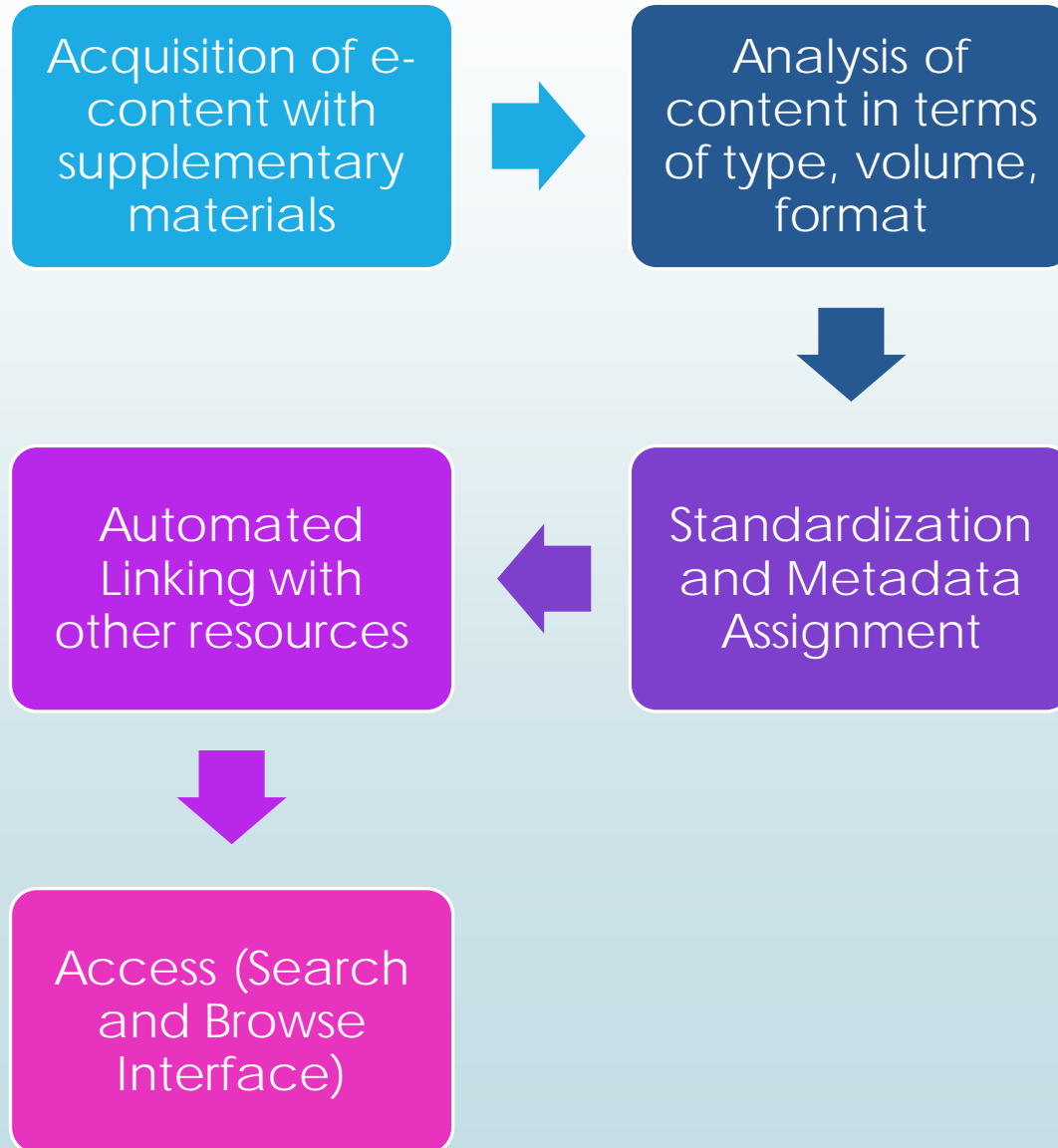
To assign meta-data for these e-content and host them into a well-structured web-platform

To incorporate add-on features such as assign metadata of e-content with links, inter-links and cross-links to other e-modules

Map syllabi / model curriculum of UGC / AICTE with the e-modules

Single point web based access to all e-content, developed with funding from the NMEICT, with usage statistics and tools for collaboration (Messaging, Feedback, Forums, Discussion Groups)

Methodology



Metadata Standard



Learning Technology Standards Committee

Project Authorization Request 1484.12.1

[LTSC Home](#) | [WG12](#) | [PAR 1484.12.1](#)

1484.12.1: IEEE Standard For Learning Object Metadata
1484.12.2: Standard For ISO/IEC 11404 Binding For Learning Object Metadata Data Model
1484.12.3: Standard For Learning Technology-Extensible Markup Language (XML) Schema Definition Language Binding For Learning Object Metadata
1484.12.4: Standard For Resource Description Framework (RDF) Binding For Learning Object Metadata Data Model

Designation: 1484.12.1-2002

Sponsor: Computer Society/Learning Technology Standards Committee

Title: IEEE Standard for Learning Object Metadata

Status: Approved Publication of IEEE

Technical Contact: Wayne Hodgins, Phone:415-507-5759, Email:wayne.hodgins@autodesk.com **For non-technical questions, including pricing, availability and ordering, please contact IEEE Customer Service at 1-800-678-IEEE (in U.S.and Canada); or 1-732-981-0060 (outside the U.S. and Canada); or send an email customer.service@ieee.org

History: PAR APP: Mar 19, 1998, BD APP: Jun 13, 2002, ANSI APP: Nov 14, 2002

Project scope: This Standard is a multi-part standard that specifies Learning Object Metadata. This Part specifies a conceptual data schema that defines the structure of a metadata instance for a learning object. For this Standard, a learning object is defined as any entity--digital or non- digital-- that may be used for learning, education or training.

PAR extracted from <http://standards.ieee.org/> on 2 October 2003.

IEEE 1484.12.1-2002

15 July 2002

Draft Standard for Learning Object Metadata

Sponsored by the Learning Technology Standards Committee of the IEEE

Standard for Learning Object Metadata

IEEE 1484.12.x

IEEE 1484.12.1 contains 62 detailed descriptive elements

Opted for 33 relevant elements

Can be easily mapped to DC or MARCXML

Proposed Features

Search Features

- Single box search
- Advanced search
- Faceted Search
- Recommendation of e-content to students for respective learners
- Subject oriented search
- Syllabus-based search

Usage Statistics

- Number of registered user
- No of downloads
- Subject-based access
- Category (UG/PG) based access
- Content-type based access
- Project based access

Add-on Features

- Latest update (RSS)
- User forum
- Invitation to upload open access content
- Social Media Plugins
- My-Space

Once all frozen e-content developed project under NME-ICT are successfully uploaded with all associated activities, the Centre would select and host other relevant e-modules available in **open access** and also enrich them with additional quadrants wherever applicable.

Proposed Features : My "Space"

User can choose his/her own collection of e-content

Provision to build pick-and-create courseware on chosen topic/subject

Courseware can be from different sources

Profile/History of visit.



My Subject

Lesson 1

Lesson 2

Lesson 3

Project- A

Project- B

Project- C

Methodology

- Preliminary work (Step-1)
 - Subject Domain
 - Subjects
 - Syllabus
 - Implementation of thesaurus
- Meta-Data for Content (Step-II)
 - Assign metadata
 - Upload/link to documents (video/audio etc)
- Search Platform (Step-III)
 - Search interface
 - Filter search
 - Statistics
 - My-Space

Preliminary work (Step-1)

Subject Domain, Subjects, Syllabus

Domain and Subject

Home

Domain and Subject

Creation of Content

Search Data

Logout

Domain

Subject

Syllabus

Message

Insert New Subject

Select Domain :

Life Science

Subject Name :



Insert Subject

Update Subject Name

Select Subject :

Select Domain :

Subject Name :



Edit Subject

Delete Domain

	No.	Subject_ID	Domain Name	Subject Name
<input type="checkbox"/>	1	28	Humanities	Dance
<input type="checkbox"/>	2	37	Humanities	Drawing & Painting
<input type="checkbox"/>	3	34	Humanities	Graphics
<input type="checkbox"/>	4	27	Humanities	Music
<input type="checkbox"/>	5	35	Humanities	Performing Arts

Step-2

Step-1

Preliminary work (Step-1)

Subject Domain, Subjects, Syllabus

New Syllabus

Select Subject :

Unit 1 :



Delete Units

	No.	Subject_ID	Unit_Name
<input type="checkbox"/>	1	27	Introduction to Music
<input type="checkbox"/>	2	27	History of Music
<input type="checkbox"/>	3	27	Types of Music
<input type="checkbox"/>	4	35	Musicians Introductions
<input type="checkbox"/>	5	35	General knowledge of the musical composition
<input type="checkbox"/>	6	35	Reading and writing of Notations of songs
<input type="checkbox"/>	7	35	Study of theoretical details of Ragas and Talas
<input type="checkbox"/>	8	63	Biology and Diversity of Lower Plants: Cryptogams
<input type="checkbox"/>	9	63	Plant Development and Reproduction
<input type="checkbox"/>	10	63	Plant Physiology and Metabolism
<input type="checkbox"/>	11	63	Cytology, Genetics and Cytogenetics
<input type="checkbox"/>	12	63	Cell and Molecular Biology of Plant

Meta-Data for Content (Step-II)

Assign metadata, Upload/link to documents (video/audio etc)

Home Domain and Subject Creation of Content Search Data Logout

Message

Content Information

Target User : UG

Content Title :

Content Description :

Content Keywords :

Content Language :

Content Subject :

Subject Domain :

Content Narrower Terms :

Project Information

Project Name :

Project Start Year :

Project Principal Investigator :

Project Institute :

Institute Address :

Author Information

Author Name :

Author Designation :

Meta-Data for Content (Step-II)

Assign metadata, Upload/link to documents (video/audio etc)

Home Domain and Subject Creation of Content Search Data Logout

Message

Metadata Information

Select Content Id:

Select Metadata Id:

Browse File : No file chosen

Content Sub Category :

Content Type :

Content Duration :

Content Pagesize :

Content Minimun Version :

Content Maximun Version :

Content Requirement :

Display Domain List

	No.	Metadata_ID	Content_ID	Type	Sub C.	Ext.	Size(MB)	Duration
<input type="checkbox"/>	1	130	153	e Text	Information Science	application/pdf	0.71322823	0
<input type="checkbox"/>	2	132	153	Learn More	Information Science	video/mp4	2.10287571	3
<input type="checkbox"/>	3	134	153	Self Assessment	Information Science	video/mp4	61.01796055	30

Prototype Interface: Home Page

Content Type Model Syllabus Subject Target Users Projects



Humanities

Dance
Drawing & Painting
Graphics
Music
Performing Arts
Physical Education

Life Science

Bioinformatics
Bioremediation
Botany
Food & Nutrition
Food Technology
Life Sciences

Linguistics & Languages

Charan Kanya
Folk Literature
French
German
Hindi
Japanese

Management Sciences

Business
Human Resource Management
Industrial Relations
Labour and Social Welfare
Labour Welfare
Personnel Management

Mathematical & Computer Science, Information & General Works

Computational Sciences
Computational Social Science
Computer Science
Library and Information Science
Mass Communication and Journalism
Mathematics

Natural Sciences

Chemistry
Earth Sciences
Electronic Science
Geology
Home Science
Industrial Chemistry

Free-Search Exact-Search | UG PG | Video Text

Content Type

Model Syllabus

Subject

Target Users

Projects

Polytechnic University e-Lectures

Project

Education Cooperation Programme

epathshala

e-content

Undifine

Civil Service Branch

Statistics

Subject-based access

Category-based [UG,PG] access

Content-wise Access

Search result

Integrated e-Content Portal

An MHRD Project under its National Mission on Education through ICT (NME-ICT)

Home About Student Corner Uploaded Content Statistics Content Category Feedback Login

Back

culture

Free-Search Exact-Search | UG PG | Video Text

Bharatanatyam - authentic classical Indian dance

Category : UG , Project Name : Project

Uploaded at : 2014-02-25 12:00:08.0

Read more..

Culture and Psychology of Arab-Muslim Societies

Category : UG , Project Name : Project

Uploaded at : 2014-02-25 15:54:30.0

Read more..

Search Result

Link to Related Courseware

Link to Related e-books

Link to related Ph.D. Theses (ShodhGanga)

Link to other open access contents

Link for add to My "Space"

Social Media API

Link to View Discussions

Read more..

Refine Your Search

Category Level

PG [9]

UG [9]

Project Name

epathshsla [8]

Project [5]

Civil Service Branch [1]

Education Cooperation Programme [1]

Polytechnic University e-Lectures [1]

Undifine [1]

e-content [1]

Principal Investigator

empty [9]

Undefined [8]

Onur G. Guleryuz [1]

Institutes

INFLIBNET [9]

Undefined [7]

ACCU Asia-Pacific Cultural Centre for UNESCO [1]

Polytechnic University [1]

Metadata Schematic

Unique no	Iec/subject/project/00001	Last modification date	23/11/2012
URL	http://nptel.itm.ac.in/video.php?subjectId=106102062	Content category	Computer Architecture
Title	Introduction to Computer Architecture	Requirement to access content	Video player
Language	English	Format	Video(.mp4)
Brief	This video clip is about Data Bus and Address Bus	Size	204MB
Keyword	Data bus, Address Bus, Clock Frequency, ALU, CPU	Hardware requirement	Sound Card
Version	If book 3 rd addition	Difficult level	Medium
Upload date	21/11/2012	Permission of content access	Open access
Duration	30 min		
Target user	PG Student		

About Content

Suggested Reading Material

Contributors/About Project



Filter / Browse	Course-based (UG/PG/Engg)
	Broader term
	Narrower term
	Project based
	Other reading material on same topic
	Type of content –based (Text/PDF/Audio/Video/Animation/)

Suggestion/Comments from Standing Committee (Previous Meeting)

Scope of “integrated e-content portal” project for hosting by INFLIBNET

The project will create metadata for all e-content created under the NME-ICT. However, the project will focus only providing hosting platform to completed / frozen e-content project funded by NME-ICT.

Project Review and Supervisory Group (PRSG)

Since project is about the integration and inter-linking of e-content therefore creation of meta-data plays vital role. The Committee recommended that PRSG may be involved at starting of the project, The SC also proposed the name of Prof Uma Kanjilal, Mr. Pradeep Varma and some members from list of reviewer / experts provided by PI in proposal.

Project Closure Certificate for E-content projects under NMEICT

It was discussed that INFLIBNET Centre may issue completion certificate after acquiring and hosting of e-content project developed by respective PIs.

Time chart

Sr. No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12
01	Acquire data / content from different project's PIs		█	█	█	█	█						
02	Analysis on received data and form genetic format			█	█	█	█	█	█	█			
03	Upload content on development server				█	█	█	█	█	█	█		
04	Assign metadata to each e-content module		█	█	█	█	█	█	█	█	█		
05	Design and develop interface for search and browse and manage	█	█	█	█	█							
06	Testing phase				█	█	█	█					
07	Hosting of e-content at production server (Beta version of site)								█	█	█	█	█

Budget Summary

Financial Requirement (2014-15) : Rs 106.76 Lacs

One-time (Hardware)	Rs 52.00 Lacs
---------------------	---------------

Recurring (Manpower)	Rs. 38.76 Lacs
----------------------	----------------

Recurring (Others)	Rs. 16:00 Lacs
--------------------	----------------

Financial Requirement (2015-16): Rs 28.23 Lacs

Recurring (Manpower)	Rs. 23.23 Lacs
----------------------	----------------

Recurring (Others)	Rs. 05:00 Lacs
--------------------	----------------

Financial Requirement (2016-17): Rs 30.55 Lacs

Recurring (Manpower)	Rs. 25.55 Lacs
----------------------	----------------

Recurring (Others)	Rs. 05:00 Lacs
--------------------	----------------

Financial Requirement (2017-18): Rs 32.10 Lacs

Recurring (Manpower)	Rs. 28.10 Lacs
----------------------	----------------

Recurring (Others)	Rs. 04:00 Lacs
--------------------	----------------

Financial Estimation

(One time: 2014-15)

<i>Items</i>	<i>No of Item</i>	<i>Rate / Unit</i>	<i>Total</i>	<i>Remarks</i>
Production Server (Blade Server)			00.00	<i>Facility available at NME-ICT</i>
Development Server	2	3.50	7.00	
Non linear editing Machine	1	5.00	5.00	
Redundant Server			00.00	<i>At NME-ICT (For mirroring)</i>
Workstation / Laptop / Multimedia Desktop /PC / Printer / Scanner			20.00	
Multimedia Software			10.00	<i>License / purchase</i>
Reformatting of e-content			10.00	<i>Enabling content for seamless streaming (adaptive bitrate), webpages for textual materials, etc</i>

Financial Estimation

(₹ in lakhs 2014-15)

Item	Total	Remarks
Remuneration for Metadata Assignment	5.00	To create meta-data of different subjects
Data Hosting charges including redundant bandwidth	0.00	To be hosted on SAKSHAT
Travel	5.00	
Consumables and Stationery	2.00	
Printing of Brochures & Pamphlets	4.00	
Total	16.00	

Manpower Requirement #			
Position		Number	Amount
Senior Scientist	Project	1	3.60
Project Scientists		4	10.80
Project Associates		6	12.96
Project Assistants		6	10.80
Office Attendant		1	1.20
Total			38.76
#- Manpower would may vary as per actual volume of work			

Financial Estimation

(₹ in lakhs 2015-16, 2016-17 & 2017-18)

Item	Total	Remarks
Remuneration for Metadata Assignment	5.00	To create meta-data of different subjects
Data Hosting charges	0.00	To be hosted on SAKSHAT
Travel	5.00	
Consumables and Stationery	2.00	
Printing of Brochures & Pamphlets	4.00	
Total	16.00	

Manpower Requirement		
Position	Number	Rupees in Lacs
Senior Project Scientist	1	3.00
Project Scientist	2	5.04
Sr Project Associate	3	6.48
Project Associate	3	5.40
Office Attendant	1	1.20
10% increment / allowances		2.11
Total Expenditure on Manpower		23.23

Challenges & Limitations

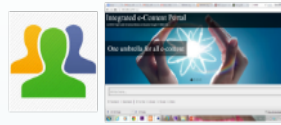
- Acquisition of Content (NMEICT's Intervention is Required)
- Policy and support for Persistence, Preservation and Long-term availability of content (MoU may be signed among INFLIBNET,UGC,MHRD)
- Scalability of Infrastructure.
- Redundancy & Load balancing



Thanks !

Integrated e-content portal Architecture

Frozen e-Content Projects developed under NME-ICT



Client Layer
Client (end user)



e-content Processing

- Ingest
- Packing
- Protection

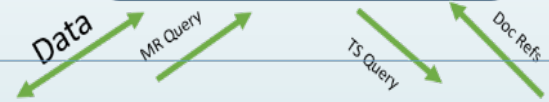
Application Server

Application Layer

mongoDB Server Cluster

Apache Solr Server Cluster

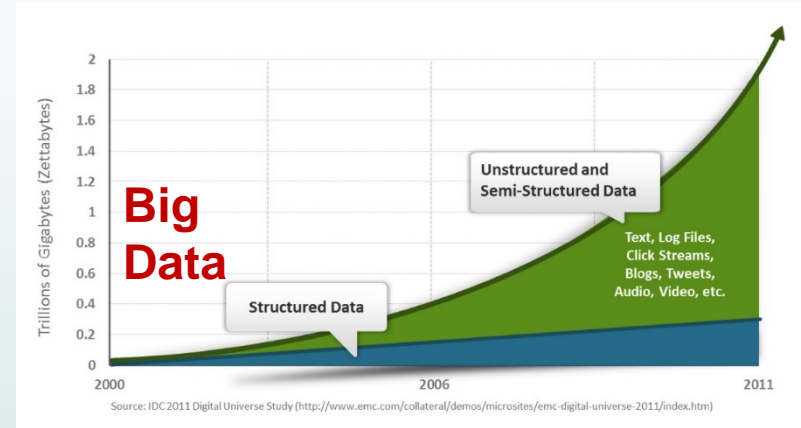
Storage Layer



Challenges in Content Management and delivery



Big User

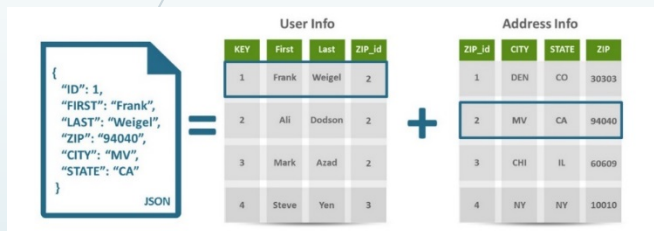


Dynamic Content



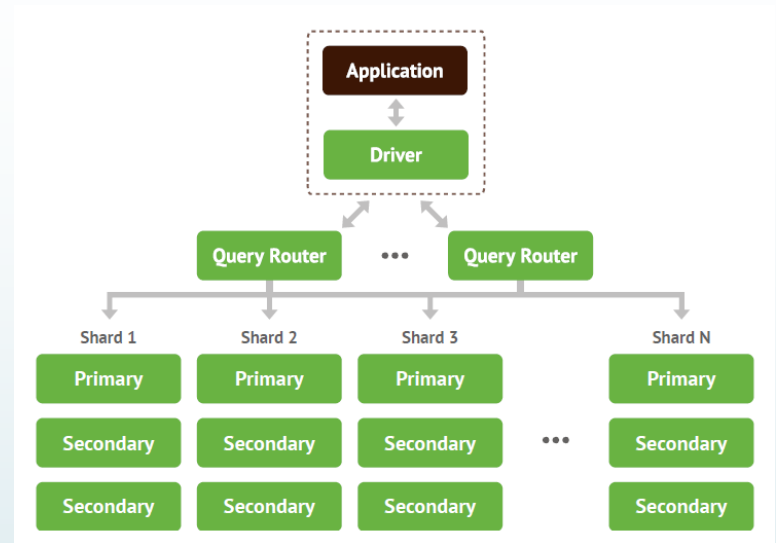
Unstructured Data

Solution



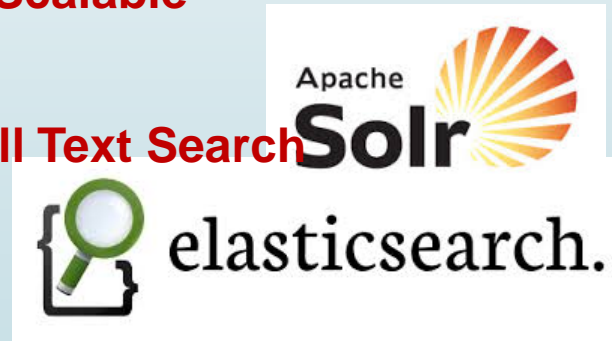
Dynamic Schema

Capable to Store Rich Media



Horizontally Scalable

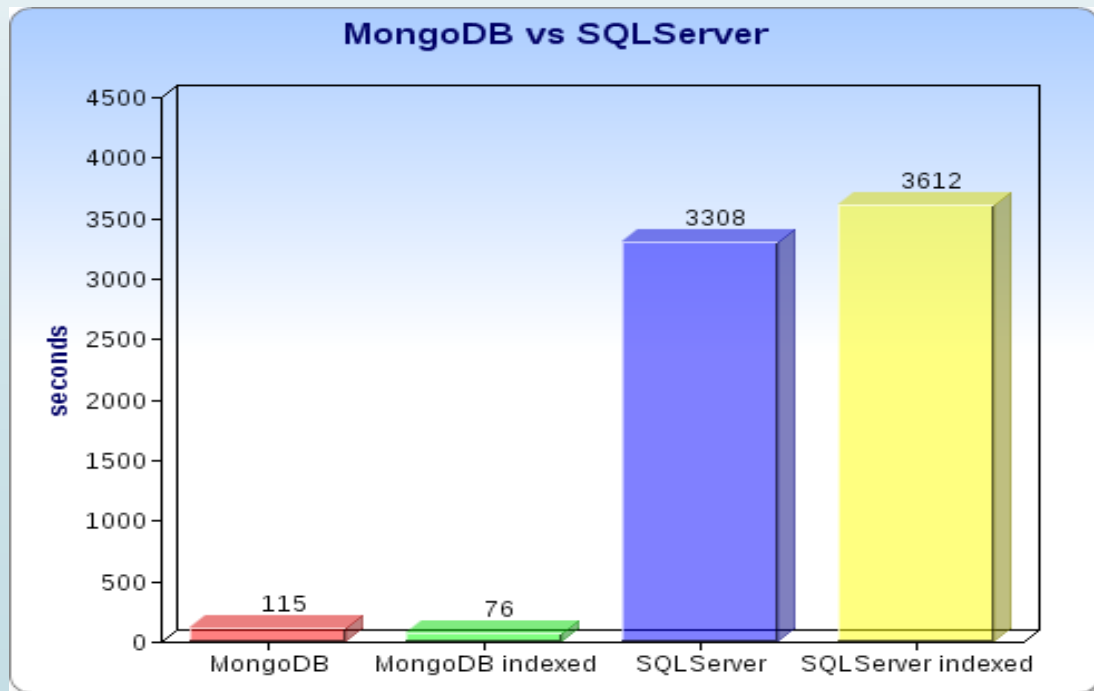
Full Text Search



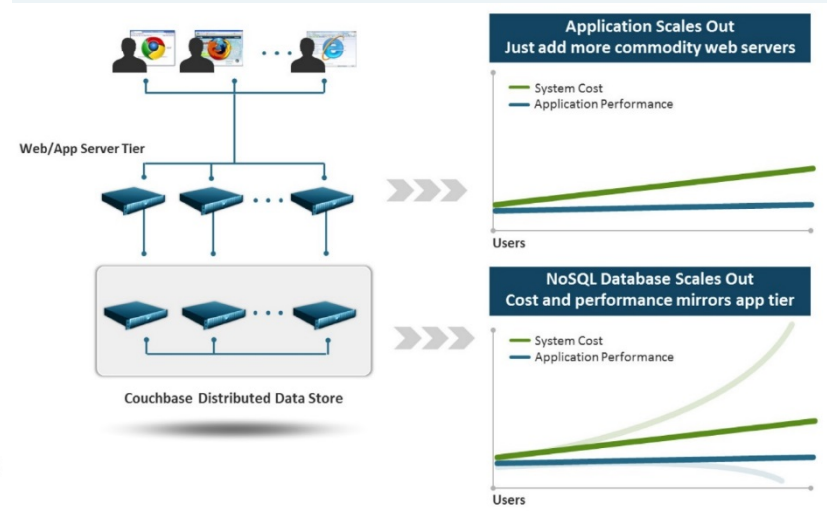
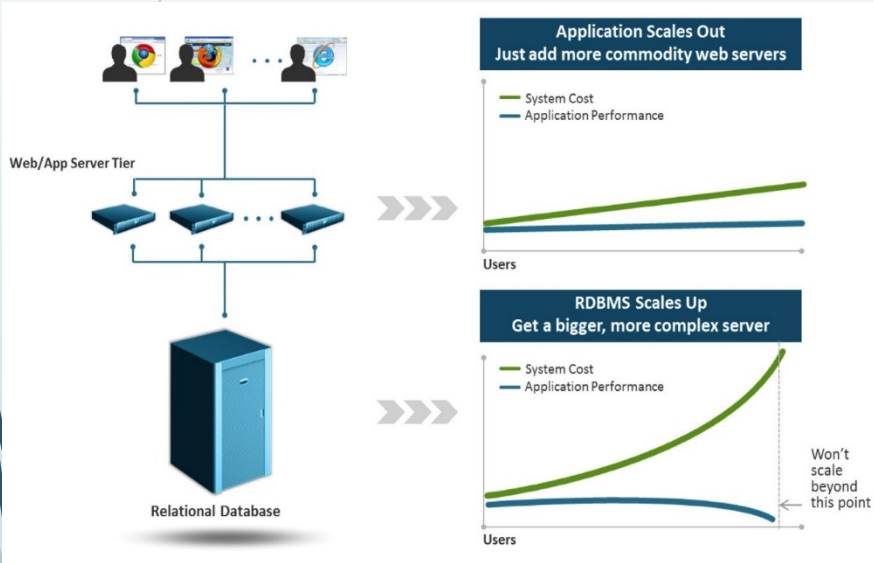


Operating System	File-size Limit
Win32 w/ FAT/FAT32	2GB/4GB
Win32 w/ NTFS	2TB (possibly larger)
Linux 2.2-Intel 32-bit	2GB (LFS: 4GB)
Linux 2.4+	(using ext3 file system) 4TB
Solaris 9/10	16TB
Mac OS X w/ HFS+	2TB

Virtual Memory Limitations		
Operating System	Journalled	Not Journalled
Linux	64 terabytes	128 terabytes
Windows	4 terabytes	8 terabytes



NoSQL's scalability and performance advantage



Volume of Data (Major Project)

Project	Module (Video)	Remarks
NPTEL (Phase-I)	4400	110(course)X40(video lecture)
NPTEL (Phase-II)	10000	250(course)X40(video lecture)
CEC (Phase-I)	6745	19(subject)X355(module)
CEC (Phase-I)	24140	19(subject)X355(module)
E-PGP	43120	77(subject)X16(Paper)X35(modules)
	88405	

Size

A	Compressed HD 720p @ H.264 high profile 2500 kbps	20 MB
B	Compressed SD 480p @ H.264 main profile 1200 kbps	10 MB

CEC	Subjects	Modules	Avg Mins/Module	Total hours	Profile A(GB)	Profile B(GB)
	1	355	30			
Phase I	19	6745				
Phase II	68	24140				
Total	87	30885		15442.5	18531	9265.5

EPGP	Papers	Modules(Paper)	Total Modules	Average Video Duration Per Module (Mins)	Total Hours	Profile A(GB)	Profile B(GB)
Per Subject	16	35	560	30	280	336	168
For 77 Subjects	1232		43120		21560	25872	12936

Size

- A Compressed HD 720p @ H.264 high profile
2500 kbps 20 MB
- B Compressed SD 480p @ H.264 main profile
1200 kbps 10 MB

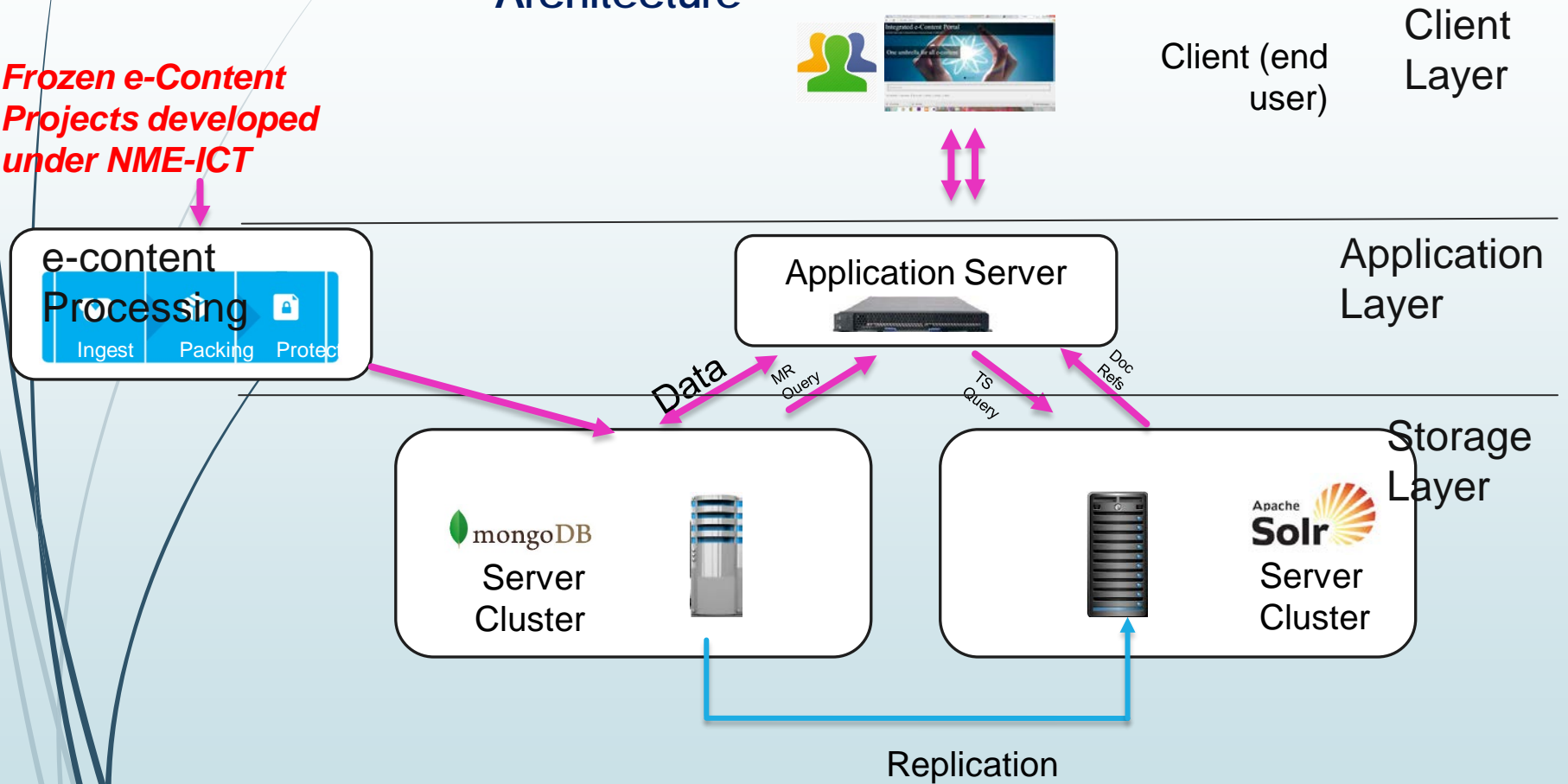
NPTEL	Courses	Video Lectures / Per course	Average Video Duration Per Course (Mins)	Total Hours	Profile A(GB)	Profile B(GB)
Phase 1	110	40	60	4400	5280	2640
Phase 2	250	40	60	10000	12000	6000

Project	Hours	Profile A (GB)	Profile B (GB)
CEC	15442.5	18531	9265.5
EPGP	21560	25872	12936
NPTEL	14400	17280	8640
Other		12336.6	6168.3
Total		74019.6	37009.8

Throughput Calculation for Concurrent Users		Estimated Port Speed	1 GBPS
	A	Minimum Achievable Bandwidth @ Server	100 MBPS
	B	Throughput Required for Better Quality Streaming	512 K Per User
		No. Of Concurrent Users (A/ B)	~200
		In case of Best YouTube Quality Video (256K)	~400

Integrated e-content portal Architecture

**Frozen e-Content
Projects developed
under NME-ICT**



E-content development for 87 undergraduate subjects under NME-ICT project of MHRD

NME-ICT Control No: DE-19111011541

Implementing Agency:

Consortium for Educational Communication

IUAC Campus, Aruna Asaf Ali Marg,

New Delhi – 110067

website: www.cec.nic.in

Prof. Rajbir Singh

About CEC

- **CEC an Inter University Centre was established by University Grants Commission (UGC) on 26th May 1993 under section 12(ccc) of its act.**
- **CEC is a nodal agency at National level, to address the educational needs of the country through the use of various modes of communication such as TV, Radio, EduSat and Internet.**

Consortium Members

- **CEC has 22 Educational Multimedia Research Centres (EMRCs) located in various State and Central Universities across the country.**
- **At present 17 Centres are operational and 5 Centres at Bhubaneswar, Puducherry, Lucknow, Gaya & Dibrugarh have been setup by UGC recently.**
- **These Centres are engaged in production of Video & Multimedia based programmes since more than 28 Years.**
- **Centres have about 500 trained manpower & state of art equipments.**

Mapping of Consortium Members



CEC Knowledge Resource Repository

- **CEC Media Centres have been pioneer in production of Educational Television programmes (ETV) both enrichment and curriculum based content since last 28 years.**
- **CEC has one of the largest repository which includes –**
- **More than 22,500 Educational Video programmes.**
- **More than 6836 e-content modules.**
- **More than 1500 short learning objects.**
- **More than 2200 video programmes, e-contents, LOR etc., are added to the repository annually.**

Multimode Dissemination of Education content

- **DTH Broadcast** : 24X7 Vyas Higher Educational Channel being telecast since **26th January, 2004**. which is available on DTH Platform of **DD Direct Plus** and **Dish TV**.
- **EDUSAT** : UGC-CEC nationwide two way interactive EDUSAT network with installed notes of over 100 Satellite interactive Terminals (SITs) and 71 ROTs
- **Migratory Teaching End** : The CEC has unique Migratory Teaching End facility.
- Two hours transmission of EduSat Live lectures from the month September 2013. Subject experts are invited and regular live transmission takes place from the CEC.
- **Youtube** : The programmes transmitted on EDUSAT is also available on www.youtube.com/edusat.

Non Broadcast Mode

Webcast:-

To increase the reach and access of Educational content CEC has recently made available the Vyas 24x7 Higher Education Channel on web portals such as-

CEC web portal:

www.cec.nic.in,

Govt. of India webcast :

www.webcast.gov.in,

MHRD Educational web portal:

www.sakshat.ac.in

- Distribution of ETV programmes through DVD/CD on demand by the viewer. For making copies of the DVD/CD CEC has also installed multiplication facilities.

E-content Development of 87 UG subjects under NME-ICT

- The MHRD vide its communication dated 31st March, 2009 has approved a Project Proposal for e-content development to CEC in 87 under graduate subjects.
- MHRD released an amount of Rs. 50,00,000/- on 15th July, 2009 towards pilot project. A total of 65 modules were produced and submitted to MHRD. After acceptance of the pilot modules by MHRD the pilot project was closed.
- After receiving the initial funds in March, 2011, CEC Media Centres started producing the e-content courseware in allotted subjects.
- CEC Media Centres developed an e-content template in four quadrant following instructional design methodology.

Four quadrant approach in E-content development

<p>1st Quad Text Resources</p> <p>Textual Document, PDF / e-Books / illustration, documents & Interactivity wherever required Simulations, Virtual Labs</p>	<p>2nd Quad Visual Resources</p> <p>Video and Audio Content in an organized form, Animation,</p>
<p>3rd Quad Web Resources</p> <p>Related Links, Wikipedia Development of Course, Open content on Internet, Case Studies, Anecdotal information, Historical development of the subject, Articles</p>	<p>4th Quad Self Assessment</p> <p>MCQ, Problems, Quizzes, Assignments, & solutions, Online feedback through discussion forums & setting up the FAZ, Clarifications on general misconceptions etc.</p>

CEC e-Content template



Consortium for Educational
Communication, India



सत्यमेव जयते



HOME

CONTACT

NME-ICT, MHRD
National Mission on Education
through ICT

OBJECTIVES

SUMMARY

VIDEO / AUDIO

SEARCH

TEXT

ASSIGNMENT

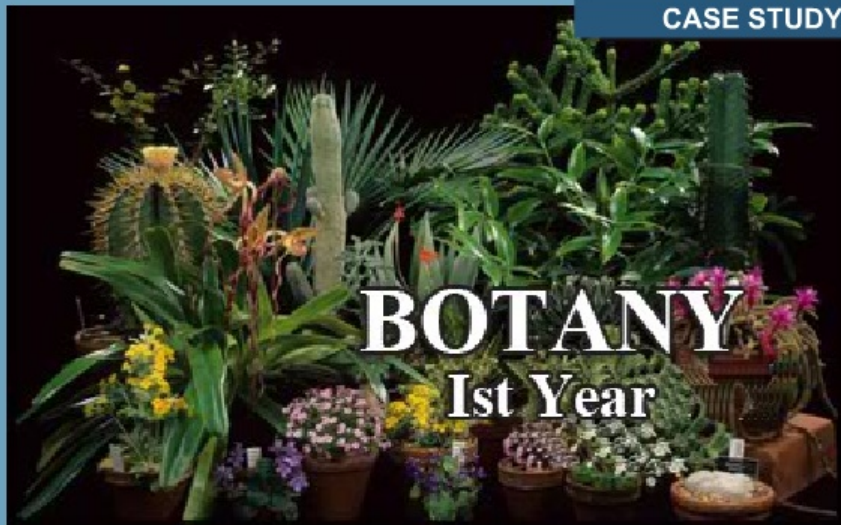
REFERENCE

DOWNLOAD

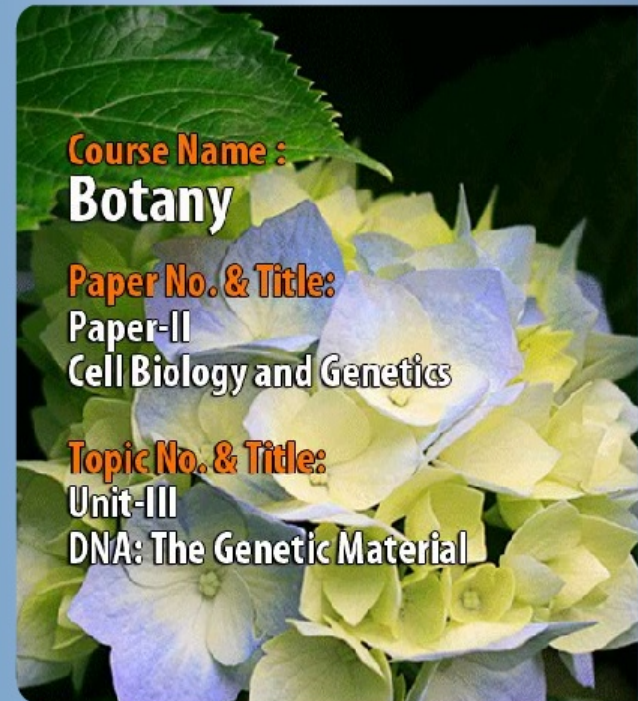
BLOG

FAQs

CASE STUDY



BOTANY
Ist Year



Course Name :

Botany

Paper No. & Title:

Paper-II
Cell Biology and Genetics

Topic No. & Title:

Unit-III
DNA: The Genetic Material

Empowering through e-Education

Unique Features of CEC e-content module

- Maintaining highest Audio/Video quality
- Production of e-content in complete 4 Quadrants
- Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules
- Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
- E-content certification and validation in two stages
- Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter
- Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.

Subjects allotted to Media Centres under Phase - I (29 Subjects)

CEC has completed e-content courseware in 8 subjects and uploaded on Sakshat portal and CEC web portal as below:

1.History	-	356
2.Botany	-	279
3.English Language	-	131
4.Environmental Science	-	76
5.Anthropology	-	193
6.Mathematics	-	379
7.Hindi Language	-	141
8.Photography	-	27

Production of e-content courseware in remaining 21 UG subjects

Contd...

Sr. No.	Subject Allotted	Media Centres	E-content Developed till January, 2014
1	B.A. Economics	Hyderabad Osmania	202
2	B.A. Communication & Journalism	MCRC Jamia	205
3	B.Sc. Zoology	Ahmedabad	120
4	B.Com Commerce	Jodhpur	712
5	B. Sc. Computer Science	Chennai	315
6	B.A. Geography	Mysore	204
7	B.A. Performing Arts	Patiala	247
8	B.A. (Hons.) English Literature	Hyderabad ELFU	299
9	B.A. Hindi Literature	Indore	213
10	B.A. Business Management	Pune	44
11	B.Sc. Chemistry	Roorkee	109
12	B.Sc. Geology	Sagar	78
13	B.Sc. Applied Physical Sciences (Electronics)	Chennai	82
14	B.A. Sociology	Madurai	385
15	B.Sc. Applied Life Science (Sericulture)	Mysore	94
16	B.A. Psychology	EFLU Hyderabad	196
17	B.Sc. (Hons) Microbiology	Kolkata	73
18	B.Sc. Agriculture (1 st Year)	Jodhpur	13
	B.Sc. Agriculture (2 nd Year)	Madurai	0
	B.Sc. Agriculture (3 rd Year)	Imphal	0
19	B.Sc. Applied Physical Sciences (Computer Science)	Patiala	161
20	B.Sc. (Hons) Statistics	Mysore	190
21	B.Ed.	Calicut	154

Financial Implications for Phase-I

- **Phase I-Total** 10295 modules for 29 subjects @ 355 modules per subject @ Rs. 17,500/- per modules
- Expenditure for e-content modules Rs. 10295 X 17,500/- = Rs. 18,01,62,500/-
- Workshops/training 10 nos. @ Rs. 2,00,000/- per workshop = Rs. 20,00,000/-
-
- **Total for Phase – I = Rs. 18,21,62,500/-**

• Release of Funds by MHRD and Utilization

From the sanctioned amount of Rs. 18.50 Crores, as mobilization advance ,MHRD has so far released the grant of Rs. 16.42 Crores for Development of e-content courseware. The details are given below:

Sl. No	Grants Received	Amount	Utilization Certificates submitted
1	Sanction letter No.16-38/2009-DI dated 31.03.2009	Rs. 50.00 Lakhs	CEC/JD(HW)/MHRD Project/09/18132 25 th March, 2010
2	Sanction letter No. 16-38/2009-DI dated 28.02.2011 Grants Received on 09.03.2011	Rs. 05.40 Crores	CEC/SW/NME-ICT/2011/10130 23 rd September, 2011
3	Sanction letter no. 16-38/2009-DI dated 16.12.2011 Grants Received on 02.01.2012	Rs. 03.00 Crores	CEC/SW/NME-ICT/2012/22328 13 th March, 2013
4	Sanction letter no. 16-38/2009-DI dated 28.03.2012 Grants Received on 31.03.2012	Rs. 03.10 Crores	CEC/SW/NME-ICT/2012/22328 13 th March, 2013
5.	Sanction letter F-16-38/2009-DI dated 18 th February, 2014	Rs. 4.42 Crores	
Total Grants Received till date		Rs. 16.42 Crores	

Financial implication under Phase-II

- No. of Modules to be produced $58 \times 355 = 20,590$ modules
- Total 20595 modules for 58 subjects @ 355 modules per subject @ Rs. 34,000/- per modules
- Expenditure for e-content modules Rs. $20590 \times 34,000/- = \text{Rs. } 70,00,60,000/-$
- Workshops/training 58 subjects @ Rs. 2,00,000/- per subject = Rs. 1,16,00,000/-
- **Total for Phase – II = Rs. 71,16,60,000/-**

Subjects allotted to Media Centres under Phase - II (58 subjects)

Sr. No	Subject Allotted	Media Centres	E-content Developed till January, 2014
1	B.A. (Hons) Urdu (1 st Year)	Srinagar	16
	B.A. (Hons) Urdu (2 nd Year)	EFLU Hyderabad	0
	B.A. (Hons) Urdu (3 rd Year)	MCRC, Jamia	0
2	B.A. (Hons) Music (Ravindra Sangeet)	Kolkata	0
3	B.A. (Hons) Political Science	Kolkata	0
4	B.A. (Hons) Hindi Journalism	MCRC, Jamia	0
5	B.A. (Hons) Philosophy	Calicut	74
6	B.A. (Hons) Business Economics	Ahmedabad	06
7	B.A. (Hons) Sanskrit (1 st Year)	Ahmedabad	0
	B.A. (Hons) Sanskrit (2 nd Year)	Roorkee	0
	B.A. (Hons) Sanskrit (3 rd & 4 th Year)	Chennai	0
8	B.A. (Hons) Music (Karnataki Sangeet)	Madurai	0
9	B.A. (Hons) Music (Hindustani Classical)	Pune	34
10	B.A. (Hons) Social Work	Hyderabad Osmania	10
11	B.A. Vocational Studies (Book Publishing)	Kolkata	0
12	B.A. Management & Marketing of Insurance (1 st & 2 nd Year)	Jodhpur	101
	B.A. Management & Marketing of Insurance (3 rd Year)	Hyderabad Osmania	0
13	B. A. (Foreign Language) French & Spanish	EFLU Hyderabad	0
14	B.A. Fine Arts	MCRC Jamia	23
15	B.A. in Film Studies	Kolkata	0
16	B. A. Vocational Studies (Advertisement)	Indore	06
17	B. A. Vocational Studies (Accounts)	Indore	05
18	B. A. Vocational Studies (Office Audit)	Indore	01

19	B. A. Vocational Studies (Computer)	Indore	29
20	B.A. Human Rights	Imphal	48
21	B.A. Tourism	Mysore	36
22	B. A. Human Resources Management	Pune	64
23	B.A. Social Welfare Administration	Madurai	0
24	B. A. Vocational Studies	Mysore	0
25	B. A. Marketing Management & Retail Business	Jodhpur	121
26	B.A. Office Administration & Secretarial Practice	Pune	17
27	B.A. Public Administration	Hyderabad Osmania	08
28	B.A. LLB (1 st & 2 nd Year)	Srinagar	119
	B.A. LLB (3 rd , 4 th & 5 th Year)	EFLU Hyderabad	14
29	B. A. Vocational Studies - Mass Communication Video Production	Kolkata	47
30	B. A. Population Studies	Patiala	0
31	B. A. Education	Srinagar	01
32	B.Sc. (Hons) Food Technology (1 st Year)	Srinagar	11

	B.Sc. (Hons) Food Technology (2 nd & 3 rd Year)	Mysore	06
33	B.Sc. Life Sciences (1 st Year)	Ahmedabad	14
	B.Sc. Life Sciences (2 nd Year)	MCRC, Jamia	01
	B.Sc. Life Sciences – 3 rd Yr.	Imphal	0
34	B.Sc. Analytical Methods in Chem & Bio-Chem	EFLU Hyderabad	0
35	B.Sc. (Hons) Home Science	EFLU Hyderabad	07
36	B.Sc. (Hons.) Bio-Medical Sciences	EFLU Hyderabad	0
37	B.Sc. (Hons) Electronics	Jodhpur	38
38	B.Sc. (Gen) Mathematical Science	Chennai	27
39	B.Sc. (Hons) Polymer Science	Chennai	16
40	B.Sc. Physics (Hons.)	Chennai	59
41	B.Sc. Agro-Chemical and Pest Control	Mysore	0
42	B. Sc Bio-Informatics	Calicut	03
43	B.Sc. Applied Physical Sciences (Environmental Science)	Chennai	44
44	B.Sc. Applied Physical Sciences (Industrial Chemistry)	Roorkee	27
45	B.Sc. (Hons) Bio-Chemistry – 1 st Yr.	Hyderabad Osmania	0
	B.Sc. (Hons) Bio-Chemistry – 2 nd & 3 rd Yr.	Madurai	01
46	B.Sc. Physical Sciences	Hyderabad	0
		Osmania	
47	B. Arch.	Chennai	01
48	B.Ed. (Special Education for Visually Impaired)	Madurai	06
49	B.Ed (English)	EFLU, Hyderabad	0
50	B.El.Ed. (Elementary Education)	Madurai	0
51	B.Lib.Sc.	Calicut	13
52	B.P.Ed. (1 st & 2 nd Year)	Patiala	0
	B.P.Ed. (3 rd Year)	Imphal	0
53	B. Pharmacy	Sagar	0
54	BFA Painting Applied Art Sculpture / Epigraphy	Calicut	30
55	BFA Painting Applied Multimedia	Calicut	04
56	Bachelor for Theatre Arts	Calicut	38
57	Bachelor of Business Studies	MCRC, Jamia	26

Outsourcing e-content production in Phase - II

- A provision was made in phase-II of the CEC project proposal for e-content production , for outsourcing the production.
- In this regards , CEC has already framed a outsourcing policy document in which provision has been made to empanel reputed production houses/agencies for production of e-content and other e-learning content.
- To meet out the growing demand of Educational content, we need to outsource some production activities to the established and reputed production houses or agencies.
- This outsourcing document stipulates that CEC and Media Centre would ensure the quality of production through a sound mechanism of validation and certification.



Thank You

A Comparison of Present and Proposed Expenditure per e-content module March, 2014

S. No.	Description of items for payment	Present Amount for Module cost is Rs. 17,500/-	Proposed Amount for Module cost Rs. 34,000/-	Reference rates based on which payments are being made in column 2 & 3
	1	2	3	4
1	Subject Co-ordinator	Rs. 1000/-	Rs. 1000/-	As per e-content DPR
2	Subject expert/ Resource person a. For Research (Background work for reference material field visits etc.) b. For providing objectives, summary, Downloadable (PDF) text, Transcript, case studies, FAQ`s, Assignments, Quiz, tutorial References, Glossary, Web References etc. c. Onscreen presentation by the subject expert	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000 - 5000/- * Rs. 2000 - 8000/- * Rs. 1000 - 2000/- *
3.	For production of ETV programme/Video modules a. Hiring /purchase of Equipment, facilities. b. Hiring/engagement of Human resources on contract basis as permissible under project for timely and successful completion of the project. c. Preproduction, Studio Recording, Music composition, Post production etc. (Presently CEC and Media Centre production facilities are being used at optimum and the expenditure is borne by Debit to UGC grants which is available only for limited no. of Video programmes. However as per DPR in Phase - II the production is also proposed to be outsourced.)	CEC e-content module has four quadrants where Audio/Video is the major quadrant. At present there are no funds available for Video production under NME-ICT.	Rs. 5000/- Rs. 5000/-	As per UGC funding for production of ETV programme.
4.	Freelance/hired Editors payment per e-content/ ETV programme for 4 shifts @ Rs.1000/- per shift (Presently Rs. 2,000/- is borne by Debit to UGC grants which is available only for limited no. of Video programmes. However as per DPR in Phase - II the production is proposed to be outsourced.)	Rs. 2,000/- which is not sufficient for Assembling, Editing, Down Converting and Chucking for Video Programmes.	Rs. 4000/-	Rs. 500 – 1000/- * Per shift
5.	Freelance/hired Graphics Artist/Animator/Module Integrator per e-content for 4 shifts @ Rs.1000/- per shift	Rs. 4000/-	Rs. 4000/-	Rs. 1500 – 2000/- * Per shift
6.	Honorarium to PI, Co-PI and staff as permissible under project for timely and successful completion of the project as permissible under project.	Rs. 500/-	Rs. 1500/-	Approx. 5% of Module cost
7.	E-content certification and validation (Presently borne by Debit to UGC grants which is available only for limited no. of Video Programmes) (a) 1 st stage at Media Centres by subject experts and production team	At present there are no funds available for quality certification and validation under NME-ICT.	 Rs. 1000/-	The Honorarium being paid to experts for preview of programmes at CEC and Media Centres Rs. 1000/-

	(b) 2 nd stage at CEC by Peer group		Rs. 1000/-	Rs. 1000/-
8.	Sub Total		Rs. 31,000/-	
9.	Contingency including transport, consumables, Integration activities, PRSG meeting, dissemination and outreach activities etc.	Rs. 1500/-	Rs. 3000/-	Approx. 10% of the Module cost
	Total 8+9	Rs. 17,500/-	Rs. 34,000/-	

Note:- 1. Rates as per UGC approved rates vide * CEC Order no.: CEC/2-65/Estt/GB/04- dt: 26th Aug., 2004

2. The above expenditure heads have been work out based on detailed work study for various production stages of e-content production , time frame for production of one module and actual expenditure involved at each stage depending on the past experience of Media Centres in production of e-content modules stickly in four quadrants under Phase-I.

3. The CEC e-content are produced in four quadrants which includes –

1st Quad - Text Resources - Textual Document, PDF / e-Books / illustration, documents & Interactivity wherever required Simulations

2nd Quad - Visual Resources - Video and Audio Content in an organized form, Animation,

3rd Quad - Web Resources - Related Links, Wikipedia Development of Course, Open content on Internet, Case Studies, Anecdotal information, Historical development of the subject, Articles

4th Quad - Self Assessment - MCQ, Problems, Quizzes, Assignments, & solutions, Online feedback through discussion forums & setting up the FAZ, Clarifications on general misconceptions etc.

4. The proposed increased in cost per module from Rs. 17,500/- to 34,000/- was worked out by MHRD pricing committee for e-content production headed by Prof. K. Mangalasunder, IIT Madras.

E-CONTENT PRODUCTION COST PER MODULE FOR CEC AND MEDIA CENTRES

Phase – I – Total 10295 modules for 29 UG subjects are to be produced

Under Phase –I , CEC and Media centres are incurring expenditure per e-content module cost of Rs.31,500 out of which Rs.17,500 was provided by NME-ICT as that amount was the permitted amount by PAB, though CEC and Media Centres had submitted per module cost of Rs. 35,000/- with the project proposal submitted in 2009 under NME-ICT to the MHRD. Rrest of Rs.14,000 is being booked against the Video programme production money received from the UGC under non -salary grants. Thus, the actual production expenditure incurred on e-content module is Rs. 31,500/- (Rs. 17,500 + Rs. 14,000)

UGC releases some money under non-salary heads which includes funds for production of video programmes .Approx. Rs. 10 Lakhs is provided to each Media Centres for a total 17 Media Centres for. the enrichment based Video programme production . Grants released by UGC is only sufficient for meeting out additional expenditure of Rs.14,000 per module for only **1214** modules per year .

However, the non-salary grants which include the Video programme production grants also from UGC are not very regular and for some years the funds are not made available to Media Centres under this head . Most of the times the UGC grants are not even sufficient to meet the salary and Maintenance requirement.

Video programme production grant under the non-salary head received from UGC during the years 2009-10, 2011, 2012, 2013, 2014 has been utilized to also meet out expenditure for producing **6836 e-content** modules.

2009-2010	2012-2011	2011-2012	2012-2013	2013-2014	Total no of NME-ICT e-content (till Jan, 14)
437	1414	2375	2435	179	6836

Phase – II – Total 20590 modules for 58 UG subjects are to be produced

As detailed above CEC is incurring Rs. 31,500/- expenditure for production of one module at present in Phase-I. It may be mentioned here that NPTEL spends Rs.29,000/- per module . Under Phase-II, CEC will be producing 10000 modules in year 2014-15 and 10590 modules in year 2015-16. The per module cost will be Rs. 34,000/- per module.. Therefore, the actual increase is Rs. 34,000 - Rs.31,500 = Rs.2,500 per module..

Additional money required for CEC is for various additional elements of four quadrants template of CEC e-content such as

- A. Quality production:-
 - Maintaining highest Audio/Video quality.
 - Production of e-content in complete 4 Quadrants.
 - Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules.
 - Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
- B. Rigorous Quality control :-
 - E-content certification and validation in two stages.
 - Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter.
 - Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.
- C. Web enabled :-
 - Meta tagging
 - Uploading on web portals

Control Number:- DE-19111011541
Submission Date:- 11/22/2010 2:35:52 PM

PART-I Personal Details

1. Name :-	Prof. Rajbir Singh
2. Designation :-	Director
3. Organisation Name :-	Consortium for Educational Communication
4. Postal Address :-	CEC, IUAC Campus, Aruna Asif Ali Marg, New Delhi - 110067
5. City :-	New Delhi
6. State :-	Delhi
7. Phone :-	011 26896637, 011- 64673905, 011- 65645236
8. Fax :-	011 26897416
9. Email :-	director.cec@nic.in
10. Mobile :-	9871413322
11. Project Category :-	E-Content Development

PART-II Information relating to Department/Institute

1. Name of Institute with complete address :	Consortium for Educational Communication, IUAC Campus, Aruna Asaf Ali Marg, New Delhi-110 067
2. Title of the Research Project	Production of Courseware e-Content Development
3. Department/ Broad Area	Hardware, Software & Multimedia
4. Major areas of research in the Department	Engaged in Education through ICT for the past 25 years.
5. Names & Designation of Principle Researchers in the major areas and list of publications during last 5 years based on work done in the Department:	
Name of Principal Investigator : Prof. Rajbir Singh, Director Co-Principal Investigators : Dr. Sunil Mehru JD(SW), Mr. Nageshwar Nath ME, & Directors of Twenty Two Media Centres	
6. Is it Inter-disciplinary Project?	Yes
7. Is it Inter-Institutional Project?	Yes
8. Is any Industry/User agency participating?	Yes
9. Brief of completed and or ongoing research projects supported by MHRD/ AICTE in the Department during last 5 years.	
Running of 24 hrs. Vyas Higher Education Channel since Jan.'04 Approved by MHRD. Production of Video progs., & Broadcast on Doordarshan since 1984. Programmes Broadcast on DD-Bharti, Gyan Darshan, Virtual Classroom Operations through EduSat, Development of e-modules for Internet Based Learning.	

PART-III Information relating to Department/Institute

10(a). Principal Investigator Details

PRINCIPAL INVESTIGATOR

- a. **Name** : Prof. Rajbir Singh
- b. **Designation** : Director, CEC
- c. **Age** : 49

d. Educational Qualification : Prof. (Dr.) Rajbir Singh, a double graduate in Law and Science, holds two masters degrees- one in English and another in Mass Communication. He is a doctorate in the area of Educational Communication ("Role of Mass Media in Educating Rural Masses") and has authored a book titled 'Development Communication: Mass Media and Public Policy' and more than a dozen research papers published in reputed National and International journals.

e. Areas of specialization: Public relation and advertising, developmental communication and social marketing, media laws and communication research.

f. Experience (Teaching & Research) : More than 22 years Teaching/Training/Research and Professional Experience in Mass Communication.

g. Selected list of papers published : The Institution (CEC) the PI is heading presently, has produced 20,000 video programmes about 6,661 e-content modules and 1500 LoRs by CEC and its media Centres till date. Perhaps, the largest collection of Educational Video Programmes.

10(b). Co-Principal Investigator Details

10B. Co-PRINCIPAL INVESTIGATORS

1. a. Name : Dr. Sunil Mehru
 b. Designation : JD(SW), CEC
 c. Age : 45
 d. Educational Qualification : Ph.D
 e, f, g, same as 10A & g

2. a. Name : Nageshwar Nath
 b. Designation : ME, CEC
 c. Age : 52
 d. Educational Qualification : B.E. (Electrical), MBA, PGDCA
 e, f, g, same as 10A & g

3. a. Director's of 22 Media Centres as per Annexure-I

11. In case it is a joint project with other Institution research labs and industries, :

- a) Directors of 22 Media Centres - participating investigators name(s) of (EMMRC Ahmedabad, Chennai, Calicut, Kolkata, Pune, ELFU-Hyderabad, Osmania Hyderabad, Jodhpur, Madurai, JMI Delhi, Manipur, Indore, Mysore, Patiala, Roorkee, Srinagar, Sagar, Bodhgaya, Dibrugarh, Lucknow, Bhubneshwar & Pondicherry) Details attached

- b) Large number of academicians, subject expert (in-service, retired) from various universities, colleges and institutions across the country and names of such experts, if any, provided by MHRD will be engaged in development of Educational Content.

- c) A large no. of production agencies engaged in production of e-content and educational material across the country will also be engaged in production of e-content programmes.

11. In case it is a joint project with other Institution, research labs and industries, names(s) of participating investigators

- In case it is a joint project with other Institution :**
- a) Directors of 22 Media Centres (EMMRC Ahmedabad, Chennai, Calicut, Kolkata, Pune, ELFU-Hyderabad, Osmania Hyderabad Jodhpur, Madurai, JMI Delhi, Manipur, Indore, Mysore, Patiala, Roorkee, Srinagar, Sagar, Bodhgaya, Dibrugarh, Lucknow, Bhubneshwar & Pondicherry) Details *attached*

 - b) Large number of academicians, subject expert (in-service, retired) from

	various universities, colleges and institutions across the country and names of such experts, if any, provided by MHRD will be engaged in development of Educational Content.
	: c) a large no. of production agencies engaged in production of e-content and educational material across the country, will also be engaged in production of e-content programmes.
12. In case industry/user agency is participating, whether a MOU has been signed or letter of intent given.	
In case industry/user agency is whether a MOU has been signed or letter of intent given.	: Yes, Tripartite MoU have been signed by the Secy., UGC, Director, CEC & the Vice - Chancellor of the 22 Host University where the Media Centres, created by the UGC, are located.
13(a). Present commitments of the Principal Investigators	
(a) Teaching	: YES
(b) Ph.Ds registered under him/her	: 12
(c) Sponsored research	: Not Applicable
(d) Consultancy	: e-Education
13(b). Present commitments of the Co-Principal Investigators	
(a) Teaching	: Industry Professional
(b) Ph.Ds registered under him/her	: Not Applicable
(c) Sponsored research	: Not Applicable
(d) Consultancy	: e-Education
14. Other members of the Research Group to work on proposed Projects:	
14. Other members of the Research Group to work on proposed Projects:	
Name and Designation	: Dr. Sunil Mehru, Jt. Director (SW), CEC : Shri Nageshwar Nath, ME : Smt. Rita Dhar, Producer : Smt. Ritu Chawla, CPA : 22 Directors of EMMRCs
Area of Specialization	: Broadcasting, Audio/ Video Content Production, e-content Production, Satellite Broadcasting, Terrestrial, IP Radio, Cable, DTH, etc. content Dissemination.
Experience (Teaching)	: Management, Production, Engineering, etc. ranging from 36 years to 12 years.
Papers Published	: Produced large number of Educational Television Programmes, e-content & LORs, Published Research Papers and Books.
PART-IV About Research Project	
15(a). Summary of the project (brief):	
Innovation in teaching and learning through the use of ICT, for mass education. The specific areas are creation of courseware e-content, for undergraduate & Post Graduate subjects.	
(b) Justification, importance of projects:	

CEC and Media Centres have vast experience and expertise in producing e-content modules. They have experience of 25 years in producing video programmes. CEC and its 22 Media Centres are already engaged in producing e-content, video based programmes and LoR's.

(c) Details of the work already done by Principal Investigator in this area:

Production of 20,000 video programmes, about 6,661 e-content modules and 1500 LoRs produced by CEC and its media centres till date.

16. Total amount required:

Phase I-Total 10295 modules for 29 subjects @ 355 modules per subject @ Rs. 17,500/- per modules

- | | |
|---|----------------------|
| 1. Expenditure for e-content modules Rs. 10295 X 17,500/- | = Rs. 18,01,62,500/- |
| 2. Workshops/training 10 nos. @ Rs. 2,00,000/- per workshop | = Rs. 20,00,000/- |

Total for Phase – I = Rs. 18,21,62,500/-

Phase II - CEC and Media Centres have been finding it very difficult to produce quality e-content in the given budget of Rs. 17,500/- in the Phase – I.

It would not be possible producing e-content under Phase – II in the same budget which has been communicated to NME-ICT, MHRD many times.

CEC vide letter No. : CEC/SW/NME-ICT/2011/15509 dated 2nd December, 2011 to the Secretary MHRD, New Delhi requested to increase the amount for e-content module from Rs. 17,500/- to Rs. 35,000/-.

Apart from cost escalation with time, the other reasons for increase in the development cost of e-content module is due to the following unique parameters of CEC e-content modules -

- A. Quality production:-
- Maintaining highest Audio/Video quality.
 - Production of e-content in complete 4 Quadrants.
 - Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules.
 - Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
- B. Rigorous Quality control :-
- E-content certification and validation in two stages.
 - Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter.
 - Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.
- C. Web enabled :-
- Meta tagging
 - Uploading on web portals

A realistic budget based on actual expenditure per e-content module has been worked out based on past experience, a detail of which is attached. The budget projection under phase – II has been made on the basis of Rs. 34,000/- per module.

S.	Description	Amount	Reference rates
----	-------------	--------	-----------------

No.			
1	Subject Co-ordinator	Rs. 1000/-	As per e-content DPR
2	Subject expert/ Resource person a. For Research (Background work for reference material field visits etc.) b. For providing objectives, summary, Downloadable (pdf) text, Transcript , case studies, FAQ`s, Assignments, Quiz, tutorial References, Glossary, Web References etc. c. Onscreen presentation by the subject expert	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000 - 5000/- * Rs. 2000 - 8000/- * Rs. 1000 - 2000/- *
3.	For production of ETV programme/Video modules a. Hiring /purchase of Equipment, facilities. b. Hiring/engagement of Human resources on contract basis as permissible under project for timely and successful completion of the project. c. Preproduction, Studio Recording, Music composition, Post production etc. (Presently borne by Debit to UGC grants)	Rs. 5000/- Rs. 5000/-	As per UGC funding for production of ETV programme.
5	Freelance/hired Editors payment per e-content/ ETV programme for 4 shifts @ Rs.1000/- per shift (Presently borne by Debit to UGC grants)	Rs. 4000/-	Rs. 500 – 1000/- * Per shift
5	Freelance/hired Graphics artist per e-content for 4 shifts @ Rs.1000/- per shift	Rs. 4000/-	Rs. 1500 – 2000/- * Per shift
6	Honorarium to PI, Co-PI and staff as permissible under project for timely and successful completion of the project as permissible under project.	Rs. 1500/-	Approx. 5% of Module cost
7	E-content certification and validation (Presently borne by Debit to UGC grants) (a) 1 st stage at Media Centres by subject experts and production team (b) 2 nd stage at CEC by Peer group	 Rs. 1000/- Rs. 1000/-	The Honorarium being paid to experts for preview of programmes at CEC and Media Centres Rs. 1000/- Rs. 1000/-
	Sub Total	Rs. 31,000/-	
8.	Contingency including transport, consumables, Integration activities, PRSG meeting, dissemination and outreach activities etc.	Rs. 3000/-	Approx. 10% of the Module cost
	Total 8+9	Rs. 34,000/-	

Total 20595 modules for 58 subjects @ 355 modules per subject @ Rs. 34,000/- per modules
1. Expenditure for e-content modules Rs. 20590 X 34,000/- = Rs. 70,00,60,000/-
2. Workshops/training 58 subjects @ Rs. 2,00,000/- per subject = Rs. 1,16,00,000/-

Total for Phase – II = Rs. 71,16,60,000/-

Grand Total for Phase I & II = Rs. 89,38,22,500/-

17(a) Recurring budget (not more than 30%) of the proposal along with item-wise breakup (Man power, Contingency, Consumable, Travel, Miscellaneous year wise breakup).

S. No.	Item	Amount per year	Duration (From	Duration (From date	Total Amount
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		(Rs. in Lakhs)	date of Revision)	of Revision)	(Rs. in Lakhs)
		Phase- I		Phase –II	
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years	3334.80
A. (ii)	Contingency, travel Aprox. 10%	133.625	1 Year	2 Years	711.60
	Sub Total A	933.625			4046.40
B. (i)	Recurring Expenses on account of engagement of Human Resource, material etc.	150.00	1 Year	2 Years	569.30
B. (ii)	Preview at Media Centre and CEC	78.00	1 Year	2 Years	426.45
	Sub Total B	228.00			995.75
C. (i)	ETV programme Production including Pre-Production, Recording, Music composition, Post Production,	350	1 Year	2 Years	1155.80
C (ii)	Honorarium to PI, CO-PI and staff	90	1 Year	2 Years	422.65
	Sub Total C	460.00			1578.45
	TOTAL A + B + C	1601.625			6620.60

(b) Detailed breakup of non-recurring items (with the equipment to be procured along with cost).

S. No.	Item	Amount (lacs) Phase – I	Amount Phase - II
D	Purchase/hiring/engaging the services/equipment/software's, not available at CEC and Media Centres	200.00	380.00
E	Academic, Production, Technical and Research workshops/training numbering 10 and 58 in Phase I & II respectively.	20.00	116.00
	Total A + B + C + D +E	1821.625	7116.60

- Note : 1. Building construction is not permitted.
- 2. The payment to subject coordinator shall be @ Rs. 1,000/- per module subject to maximum payment of Rs. 3,00,000/- per course.
- 3. Out of total project cost 10% shall be retained by Consortium for Educational Communication for incurring expenditure towards hiring/purchase of equipment and hiring of manpower and Integration, Coordination, PRSG Meetings, Meta tagging, dissemination, outreach to the students as allowed under Para – 7(iii) of the guidelines issued by MHRD for e-content development and Para – 20 E of the e-content development proposal submitted by CEC to MHRD.
- 4. The above by bifurcation is indicative only. Re-appropriation of funds from one expenditure head to another can be made by PI or Co-PI for timely completion of the project.

18. SUMMARY SHEET :	
	NA
1. Name of the Institution:	Consortium For Educational Communication
2. Title of the Project:	Production of Courseware e-Content Development, Video Programmes
3. Name of the Department:	CEC and EMMRCs
4. Cost of the Project:	
	Rs. 89,38,22,500/-
5. Amount released earlier if any:	
	Rs.11.50 Crores
6. Utilization position in respect of grants released earlier (upto-2013) for various projects (Details to have given project wise)	
	(i) Fully spent : Funds received under Phase – I - fully spent (UC Attached).
	(ii) Unspent, proposal to utilize it : NIL
7. Reasons for unspent balance	
	There have been over spending then the earlier released funds
8. Name of the Principal Investigator responsible for implementation of the Project:	
	Prof. Rajbir Singh
PART-V Detail Project Report	
1. Objective	
	The objectives of the proposed programme are to: (a) Promote generation of e-Content in all subjects; (b) Develop teachers' and experts' resources in e-Content creation; (c) Make available the e-Content to teachers and students through various delivery modes for formal and non-formal education, for supplementing and complementing the process of teaching and learning in higher education; (d) Develop partnerships between educational institutions and the IT industry for the continuous development of new content and methodology taking into account contemporary technology.
2. Methodology	
	The syllabus proposed for creation of e-Content shall be as per UGC Model Curricula for Undergraduate level courses. However, the Course Coordinator in consultation with the Subject Experts is expected to incorporate the latest developments that have taken place in that particular subject. This intention here is to provide scope for value added information on the subject.
3. Deliverables year wise and its possible contribution to major objectives of mission.	
	The following content shall be delivered in two phases. In Phase I, production of e-content courseware for 29 subjects shall be produced and under Phase II, production of e-content courseware for additional 58 subjects shall be undertaken. <ol style="list-style-type: none"> 1. Production of e-Content Modules suitable for use in PC and internet. 2. To hold Academic, Production, Technical and Research workshops for successful development, upgradation and evaluation of the objectives of the project.

4. Time schedule (year wise)

Progress & Expected e-content Production (using Four Quadrant Approach) by CEC & its Media Centre under NME-ICT MHRD Project.

4.1 Subjects under Phase-I

**Production of e-content courseware in 29 UG subjects under Phase – I
CEC has completed e-content in 08 subjects**

Sr. No.	Subject Allotted	Media Centres	E-content Developed
1.	B. A. History	Kolkata	356
2.	B.A. Botany	Srinagar	278
3.	B.A. / B.Sc. English Language	Hyderabad EFLU	120
4.	B.A. / B.Sc. Environmental Science	Indore	75
5.	B.A. Anthropology	Manipur	194
6.	B.A. (Hons.) Mathematics	Calicut	382
7.	B.A. / B. Sc. Hindi Language	Indore	144
8.	B.A. Vocational Studies (Photography)	Indore	28

Production of e-content courseware in remaining 21 UG subjects

Sr. No.	Subject Allotted	Media Centres	E-content Developed till Dec, 2013
9.	B.A. Economics	Hyderabad Osmania	202
10.	B.A. Communication & Journalism	MCRC Jamia	205
11.	B.Sc. Zoology	Ahmedabad	120
12.	B.Com Commerce	Jodhpur	697
13.	B. Sc. Computer Science	Chennai	301
14.	B.A. Geography	Mysore	204
15.	B.A. Performing Arts	Patiala	238
16.	B.A. (Hons.) English Literature	Hyderabad ELFU	290
17.	B.A. Hindi Literature	Indore	200
18.	B.A. Business Management	Pune	39
19.	B.Sc. Chemistry	Roorkee	105
20.	B.Sc. Geology	Sagar	78
21.	B.A. Sociology	Madurai	385
22.	B.Sc. Applied Physical Sciences (Electronics)	Chennai	82
23.	B.Sc. Applied Life Science (Sericulture)	Mysore	94
24.	B.A. Psychology	EFLU Hyderabad	189
25.	B.Sc. (Hons) Microbiology	Kolkata	73
26.	B.Sc. Agriculture (1 st Year)	Jodhpur	13
	B.Sc. Agriculture (2 nd Year)	Madurai	0
	B.Sc. Agriculture (3 rd Year)	Imphal	0
27.	B.Sc. Applied Physical Sciences (Computer Science)	Patiala	155
28.	B.Sc. (Hons) Statistics	Mysore	190
29.	B.Ed.	Calicut	143
TOTAL			3618

4.2 Subjects under Phase – II

Production of e-content courseware in 58 UG subjects under Phase – II

Sr. No	Subject Allotted	Media Centres
1.	B.A. (Hons) Urdu (1 st Year)	Srinagar
	B.A. (Hons) Urdu (2 nd Year)	EFLU Hyderabad
	B.A. (Hons) Urdu (3 rd Year)	MCRC, Jamia
2.	B.A. (Hons) Music (Ravindra Sangeet)	Kolkata
3.	B.A. (Hons) Political Science	Kolkata
4.	B.A. (Hons) Hindi Journalism	MCRC, Jamia
5.	B.A. (Hons) Philosophy	Calicut
6.	B.A. (Hons) Business Economics	Ahmedabad
7.	B.A. (Hons) Sanskrit (1 st Year)	Ahmedabad
	B.A. (Hons) Sanskrit (2 nd Year)	Roorkee
	B.A. (Hons) Sanskrit (3 rd & 4 th Year)	Chennai
8.	B.A. (Hons) Music (Karnataki Sangeet)	Madurai
9.	B.A. (Hons) Music (Hindustani Classical)	Pune
10.	B.A. (Hons) Social Work	Hyderabad Osmania
11.	B.A. Vocational Studies (Book Publishing)	Kolkata
12.	B.A. Management & Marketing of Insurance (1 st & 2 nd Year)	Jodhpur
	B.A. Management & Marketing of Insurance (3 rd Year)	Hyderabad Osmania
13.	B. A. (Foreign Language) French & Spanish	EFLU Hyderabad
14.	B.A. Fine Arts	MCRC Jamia
15.	B.A. in Film Studies	Kolkata
16.	B. A. Vocational Studies (Advertisement)	Indore
17.	B. A. Vocational Studies (Accounts)	Indore
18.	B. A. Vocational Studies (Office Audit)	Indore
19.	B. A. Vocational Studies (Computer)	Indore
20.	B.A. Human Rights	Imphal
21.	B.A. Tourism	Mysore
22.	B. A. Human Resources Management	Pune
23.	B.A. Social Welfare Administration	Madurai
24.	B. A. Vocational Studies	Mysore
25.	B. A. Marketing Management & Retail Business	Jodhpur
26.	B.A. Office Administration & Secretarial Practice	Pune
27.	B.A. Public Administration	Hyderabad Osmania
28.	B.A. LLB (1 st & 2 nd Year)	Srinagar
	B.A. LLB (3 rd , 4 th & 5 th Year)	EFLU Hyderabad (Bhubaneswar)
29.	B. A. Vocational Studies - Mass Communication Video Production	Kolkata
30.	B. A. Population Studies	Patiala
31.	B. A. Education	Srinagar
32.	B.Sc. (Hons) Food Technology (1 st Year)	Srinagar
	B.Sc. (Hons) Food Technology (2 nd & 3 rd Year)	Mysore
33.	B.Sc. Life Sciences (1 st Year)	Ahmedabad
	B.Sc. Life Sciences (2 nd Year)	MCRC, Jamia
	B.Sc. Life Sciences – 3 rd Yr.	Imphal
34.	B.Sc. Analytical Methods in Chem & Bio-Chem	EFLU Hyderabad
35.	B.Sc. (Hons) Home Science	EFLU Hyderabad
36.	B.Sc. (Hons.) Bio-Medical Sciences	EFLU Hyderabad
37.	B.Sc. (Hons) Electronics	Jodhpur
38.	B.Sc. (Gen) Mathematical Science	Chennai

39.	B.Sc. (Hons) Polymer Science	Chennai
40.	B.Sc. Physics (Hons.)	Chennai
41.	B.Sc. Agro-Chemical and Pest Control	Mysore
42.	B. Sc Bio-Informatics	Calicut
43.	B.Sc. Applied Physical Sciences (Environmental Science)	Chennai
44.	B.Sc. Applied Physical Sciences (Industrial Chemistry)	Roorkee
45.	B.Sc. (Hons) Bio-Chemistry – 1 st Yr.	Hyderabad Osmania
	B.Sc. (Hons) Bio-Chemistry – 2 nd & 3 rd Yr.	Madurai
46.	B.Sc. Physical Sciences	Hyderabad Osmania
47.	B. Arch.	Chennai
48.	B.Ed. (Special Education for Visually Impaired	Madurai
49.	B.Ed (English)	EFLU, Hyderabad
50.	B.El.Ed. (Elementary Education)	Madurai
51.	B.Lib.Sc.	Calicut
52.	B.P.Ed. (1 st & 2 nd Year)	Patiala
	B.P.Ed. (3 rd Year)	Imphal
53.	B. Pharmacy	Sagar
54.	BFA Painting Applied Art Sculpture / Epigraphy	Calicut
55.	BFA Painting Applied Multimedia	Calicut
56.	Bachelor for Theatre Arts	Calicut
57.	Bachelor of Business Studies	MCRC, Jamia
58.	Criminology & Forensic Science	Sagar
TOTAL		

5.Details of permanent assets to be procured from the project with estimated cost.

Equipment list for Media Centres

S.N	Equipment	Qty.	Estimated Cost in Rs (Lakhs)
1. 1	Broadcast Grade cameras with Tripode	2	15
1. 2	Vision Mixer with Multi-viewer o/p	1	7
1. 3	Audio Mixer	1	1.5
1. 4	42" LCD Multi-viewer (HDMI ports)	1	0.90
1. 5	Wireless & Lapel Microphones	5	2
1. 6	HDD Recorder/Server	1	3
1. 8	Scan converter VGA, HDMI-PAL	1	1
1. 9	Animation/Graphic Workstation with Software	1	4
1. 11	PC/Laptop	3	2
1. 10	A-V NLE editing set up	1	5
1. 11	Workstation for Integration into Flash template	1	3

1. 12	8 Port LAN Sw	2	0.25
1. 16	Amplispeaker & Head Phones	2	0.5
1. 18	Cool Studio Lights & Fixtures	1 set	3
1. 19	UPS/Inverter 5KW	1	1
1. 22	DTH Reception and 40" LCD TV	1	0.35
1. 25	Air conditioners	3	2
1. 20	Acoustic Treatment for Studio and Control Room	1 set	3
1.	Civil and Electrical modifications/renovations , Earthing Modification Jobs	1	2.5
1. 21	Racks, Installation Kit, Intercom, Cables & Consumables	1 set	3
Items to be provided by Institute			
1. 23	Control Room/ equipment room size 12X15x10ft (wxlxh) or better, to be provided by the institute.	1	
1. 24	Studio Size 20X35X12 ft., to be provided by the institute	1	
1.	Tel Land lines (2) & Broadband Internet (2)	1 Set	
1.	Fire detector, alarm, extinguishers.	1 set	
	TOTAL		60.00

6. Details of financial outlay in year wise for recurring and non-recurring funds.

S. No.	Item	Amount per year (Rs. in Lakhs)	Duration (From date of Revision)	Duration (From date of Revision)		Total Amount (Rs. in Lakhs)
				Phase - I	Phase -II	
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years	3334.80	
A. (ii)	Contingency, travel Aprox. 10%	133.625	1 Year	2 Years	711.60	
	Sub Total A	933.625			4046.40	
B. (i)	Recurring Expenses on account of engagement of Human Resource, material etc.	150.00	1 Year	2 Years	569.30	
B. (ii)	Preview at Media Centre and CEC	78.00	1 Year	2 Years	426.45	
	Sub Total B	228.00			995.75	
C. (i)	ETV programme Production including pre-production, property, regarding, Music composition, post production,	350	1 Year	2 Years	1155.80	

C (ii)	Honorarium to PI, CO-PI and staff	90	1 Year	2 Years	422.65	
	Sub Total C	460.00			1578.45	
	TOTAL A + B + C	1601.625			6620.60	

7. Management of Deliverables & IPR etc.

The Project Coordination and Progress Review Committee constituted by the Director, CEC, comprising of a panel of subject experts, technical experts, media professionals, managers including officials from the CEC to monitor and review the progress of implementation of the e-content scheme. The Director, CEC or his/her nominee shall be the Member Secretary of the Committee.

8. Justification of the projection with clear cut statement about outcomes if the project contributing to mission objective.

The project will deliver complete e-content courseware for 87 subjects. The e-content, once developed, will form an integral part of "National Mission on Education through ICT" and will also be available at Consortium for Educational Communication (CEC) and MHRD designated Website/Servers. The content will be freely accessible by all teachers and students of the Indian University system throughout the country.

PART-VI Uploaded CV and DPR

Uploaded CV :- [Click here to CV](#)

Uploaded DPR :- [Click here to DPR](#)

Part-VII DPR Summary

1. Objective

The objectives of the proposed programme are to:

1. Promote generation of e-Content in all subjects;
2. Develop teachers' and experts' resources in e-Content creation;
3. Make available the e-Content to teachers and students through various delivery modes for formal and non-formal education, for supplementing and complementing the process of teaching and learning in higher education;

Develop partnerships between educational institutions and the IT industry for the continuous development of new content and methodology taking into account contemporary technology

2. Deliverables (Please give milestones with timelines linking with payments)

The following content shall be delivered in two phases. In Phase I, production of e-content courseware for 29 subjects shall be produced and under Phase II, production of e-content courseware for additional 58 subjects shall be undertaken.

1. Production of e-Content Modules suitable for use in PC and internet.
2. To hold Academic, Production, Technical and Research workshops for successful development, upgradation and evaluation of the objectives of the project.

3. Suggestions with respect to:

- **Arrangement for quality control :-**
 - i) **Arrangement for quality control**

The content validity shall be ensured by the Production Agency and the CEC. Beside content validity, the production and technical quality control shall be ensured by the CEC.

The final products in the form of e-Content modules shall finally be previewed and approved before making it available to the public

- **Accuracy :-**

ii) Accuracy

The accuracy of the content being developed will be given highest priority during the development of the e-content. Levels of testing will be put in place to ensure utmost accuracy in the content

- **Coverage :-**

iii) Coverage

- The project is expected to fulfill the needs of those students who are unable to learn through regular stream of education.
- The course materials will be of much use to the self-employed persons who prepare for civil service and competitive examinations.
- The project will be a pioneering approach towards the setting up of CEC virtual university.

- **Updation mechanism :-**

As and when there are changes in the curriculum, the same would be translated into the e-courses as well. Also, based on the constant feedback and testing, the necessary updation would also be incorporated. For any Updation a separate proposal including the budget required shall be submitted

- **Testing by users :-**

Formative and Summative Researches shall be carried out regularly in order to test the knowledge, understanding, aptitude and application level of the learners

- **Testing by peer group :-**

The support of senior academicians, technologists and Media Managers shall be sought in order to test the content developed in terms of its academic, production and technical quality. For this, an Academic Standing Committee has been constituted, which includes officers from CEC, Academicians, Technical and Production Experts.

4. Scaling up

- **Plan :-**

Once the Development of e-content under Phase-I, picks up, the CEC shall implement the development of e-content under Phase-II, wherein additional 58 subjects shall be undertaken by outsourcing the production of e-content.

- **Strategy**

Phase – I

In-house :-All the content under phase – I for 29 subjects shall be prepared in-house and also be checked for accuracy and thereafter it would be suitably digitized to be put on Servers for access by students and general public, on the CEC and Shakshat Internet Clouds.

Phase – II

Out sourcing :-All the e-content development under Phase-II i.e. for 58 subjects shall be outsourced. Production/development of e-content under Phase-II shall be outsourced.

5. Popularizing and extension activities and plans

- **Strategy for popularization :-**

Various activities, events etc shall be organized to popularize and promote the project with the help of university and associated colleges

- **Extension activities and plans**

Maintenance mechanism :-

Maintenance of the content would also be done on a regular basis

User feedback mechanism, its execution procedure and corrective measures. :-

Feedback would be constantly collected and a plan would be structured to make the necessary changes/modifications to better suit the end user. All corrective measures would immediately be put into action. This would constantly help us in improving the quality and efficiency of our e-content.

6. Review Mechanism

- **Frequency of review :-**

Academic Standing Committee shall meet once in three months, however academic, production and technical review shall be done on regular basis.

- **List at least 10 Reviewers, who are eminent in fields of the projects :-**

1. Prof. Suranjan Das, Vice Chancellor, University of Kolkata
2. Lt. Gen Dr. D. D. S. Sandhu, Vice Chancellor, Kurukshetra University
3. Prof. Sunaina Singh, Vice Chancellor, Osmania Hyderabad
4. Prof. Ranbir Singh, National Law University, Delhi
5. Prof. Ajit K. Kembhavi, Director, IUACAA, Pune University, Pune
6. Prof. Anup Beniwal, Vice Chancellor, IP University, New Delhi
7. Prof. B. K. Kuthiala, Vice Chancellor, Makhanlal Chaturvedi Rastriya Patrakarita Evam Sanchar Vishwavidyalaya, Bhopal
8. Prof. Rajan Harshe, South Asian University, Delhi
9. Prof. Ravi Shanker, IIFT, Delhi
10. Prof. R. C. Kuhad (DUSC), University of Delhi
11. Prof. Arun Kumar Grover, Vice Chancellor, Panjab University
12. Dr. Talat Ahmad, Vice Chancellor, Srinagar
13. Prof. M. C. Sharma, Professor, SOE, IGNOU, New Delhi
14. Mr. Pradeep Verma, Sr. Consultant, NME-ICT, Delhi
15. Dr. Sandeep Chopra, Sr. Scientist, IUAC New Delhi
16. Prof. K. Mangal Sunder, IIT Madras
17. Prof. A. D. N. Bajpai, Vice Chancellor, H. P. University, Shimla
18. Prof. S. K. Sopory, Vice Chancellor, JNU, New Delhi
19. Prof. Dinesh Singh, Vice Chancellor, Delhi University, Delhi
20. Prof. Uma Kanjila, Director, ACIIL IGNOU, New Delhi

7. Budget.

- **Capital Expenditure**

Details to be captured item-wise :-

Shall be put on the CEC website as and when applicable

Focused comments on high cost equipment (More than Rs. 10 lakhs worth of items) (Specifications, reasonability of estimated cost) :-

(More than Rs. 10 lakhs worth of items) (Specifications, reasonability of estimated cost) Not applicable.

- **Revenue Expenditure**

Details to be captured item-wise :-

Shall be put on the CEC website as and when applicable.

Focused comments on :-

total honorarium to be paid in the project:-

S. No.	Item	Amount per year (Rs. in Lakhs)	Duration (From date of Revision)	Duration (From date of Revision)	Total Amount (Rs. in Lakhs)
		Phase- I		Phase –II	
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years	3334.80
A. (ii)	Contingency, travel approx. 10%	133.625	1 Year	2 Years	711.60
	Sub Total A	933.625			4046.40
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C. (i)	ETV programme Production including pre-production, property, regarding, Music composition, post production,	350	1 Year	2 Years	1155.80
C (ii)	Honorarium to PI, CO-PI and staff	90	1 Year	2 Years	422.65
	Sub Total C	460.00			1578.45
	TOTAL A + B + C	1601.625			6620.60

Project Investigator (PI), Co-project Investigator (CO-PI), Media Centre and CEC Staff associated with the development of e-content etc., who work on the project, during time other than office hours and on holidays, would be entitled for incentives in form of consultancy fees/overtime allowance/honorarium, etc. The consultancy fees/honorarium may be paid to regular faculty/staff of Media Centre as is being paid to the faculty members of IIT's, IIM's, etc. on taking similar assignments.

- **Please indicate the Anchor Institution for disbursement of funds :-**
Director, Consortium for Educational Communication

8. Cost benefit analysis including cost effectiveness approach viz-a-viz other alternatives

The produced e-content will be disseminated through various ICT modes to reach the learners across the country. It is felt that to increase the literacy of the masses in India, the cost of production of educational content electronically and making it to reach to the masses, shall be fractional to the cost of holding contact class or performing traditional teaching learning, to the same number of learners. The development of e-Contents shall help UGC and MHRD to address the issue of equity and access without compromising the quality.

9. Social Impact :-

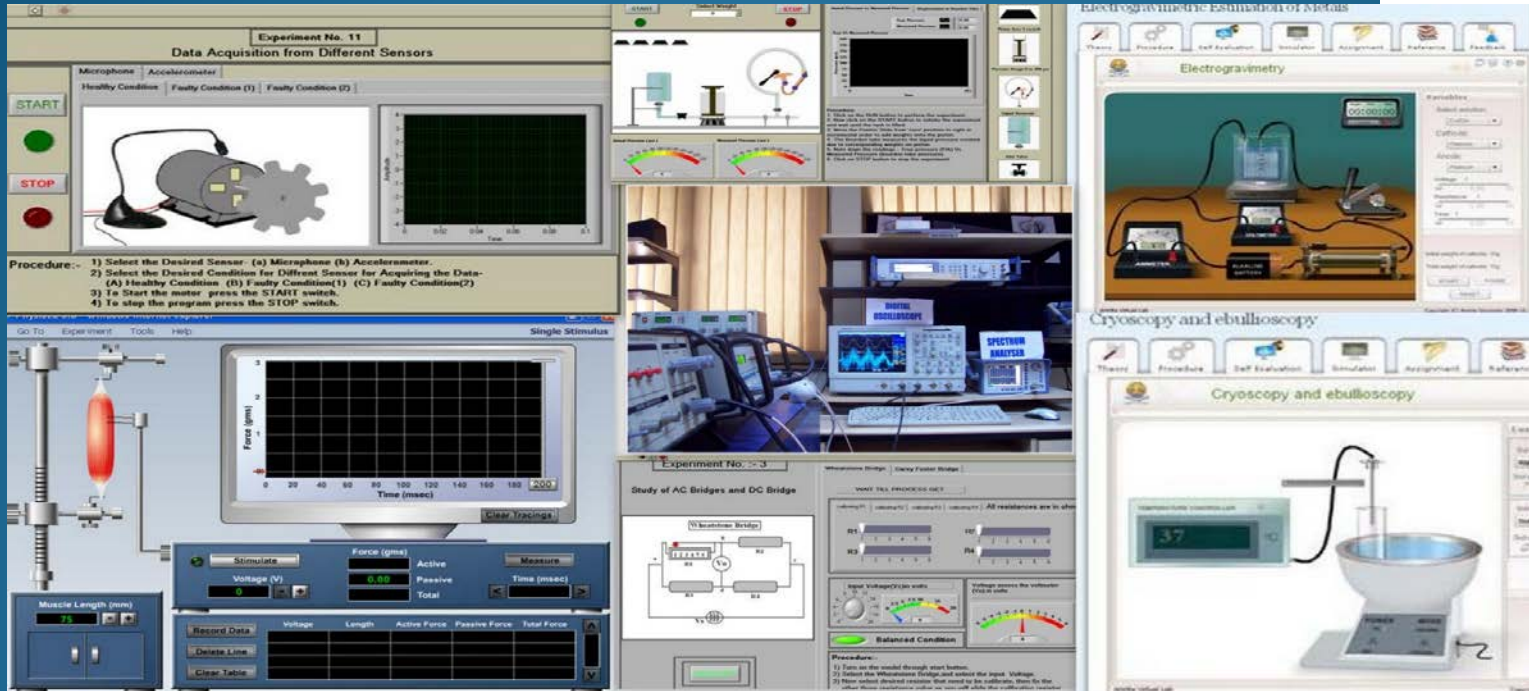
The rural-urban and gender bias in higher learning can be overcome by the utilization of e-learning materials by the institutions situated in rural areas.

10. Outcome - Extent to which the project will realize the objectives of the Mission may be given explicitly :-

The Mission Statements “identifying Delivery Models with reference to Learner-Centric Goals” and also “Using generic content and creating methodology for any target, any audience and incorporating evaluation and assessment based alternative for multi-learning modes with multimedia support” shall be focused on and the project would ensure that the objectives based on the Mission Statement are realized.



Virtual Labs (Phase II)



IIT Delhi, IIT Kanpur, IIT Bombay, IIT Madras, IIT Kharagpur, IIT Guwahati,
IIT Roorkee, IIT Hyderabad, Amrita University,
Dayalbagh University, NIT Surathkal, COE Pune

DETAILED PROJECT PROPOSAL

**MISSION PROJECT : Outreach,
Integration and Maintenance of
Virtual labs (PHASE-II)**

PEOPLE

PRINCIPAL INVESTIGATOR: Prof. R. K. Shevgaonkar
(Director, IIT Delhi)

Co- INVESTIGATORS: Prof. Ranjan Bose
(Electrical Engineering Department, IIT Delhi)

Dr. Suresh Bhalla
(Civil Engineering Department, IIT Delhi)

PARTICIPATING INSTITUTE COORDINATORS

1. Prof. Kantesh Balani IIT Kanpur
2. Prof. Santosh Noronha IIT Bombay
3. Prof. C.S. Kumar IIT Kharagpur
4. Prof. Ratnajit Bhattacharjee IIT Guwahati
5. Prof. Vinod Kumar IIT Roorkee
6. Prof. Jayanthi Sivaswamy IIIT Hyderabad
7. Prof. Krishnashree Achuthan AmritaUniversit
8. Prof. Soami Satsanghi Dayalbagh University
8. Prof. Rahul Swarup Sharma Dayalbagh University [r](#)
9. Prof. K V Gangadharan NITK Suratkal
10. Prof. Sudhir Agashe COE Pune

OBJECTIVES

- 1. To maintain/upkeep the existing operational virtual labs**
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OBJECTIVES (contd..)

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- 7. To convert labs not based on free and open source technologies to open source.**
- 8. To port the existing labs to Mobile platforms. To identify and work with government, private agencies and professional bodies for granting 'Certificate to users of Virtual Labs'.**

DELIVERABLES

Institute	No. of Labs
IIT Delhi	6
IIT Bombay	11
IIT Kanpur	3
IIT Kharagpur	20
IIT Roorkee	3
IIT Guwahati	9
IIIT Hyderabad	20
Amrita University	20
Dayalbagh University	6
NITK Surathkal	5
COE Pune	11
TOTAL	114

Phase wise
deployment of
labs:

Year 1: 40 labs

Year 2: 40 labs

Year 3: 34 labs

DELIVERABLES (Contd..)

1st year [1st Installment: release of 40% of approved budget]

Nodal Centers using Virtual Labs (end of 1st year) = 300

No. of usage for 1st year = 6, 48,000

Two reviews by an expert panel

2nd year [2nd Installment: release of 30% of approved budget]

No. of usage for 2nd year = 6, 95,500

Cumulative total number of usage = 13, 43, 520

Two reviews by an expert panel

3rd year [3rd Installment: release of 30% of approved budget]

No. of usage for 3rd year = 7, 66,800

Cumulative total number of usage = 21, 10,320

Two reviews by an expert panel

One usage (instance) = loading content of 1 experiment + loading simulation of 1 experiment

METHODOLOGY

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- A Virtual Labs Maintenance team will be established at each participating institute.
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(2) TO PORT VIRTUAL LABS TO A COMMON PLATFORM AND HOST IT ON A NATIONAL SERVER.

The 'integration activities' will be carried out at two levels:

(i) Locally at each participating institute

One Integration Engineer Per Lab

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IIT Hyderabad To Coordinate as National Integration Coordinator (NIC) (Details shall be presented by Prof. Venketesh Choppella)

METHODOLOGY

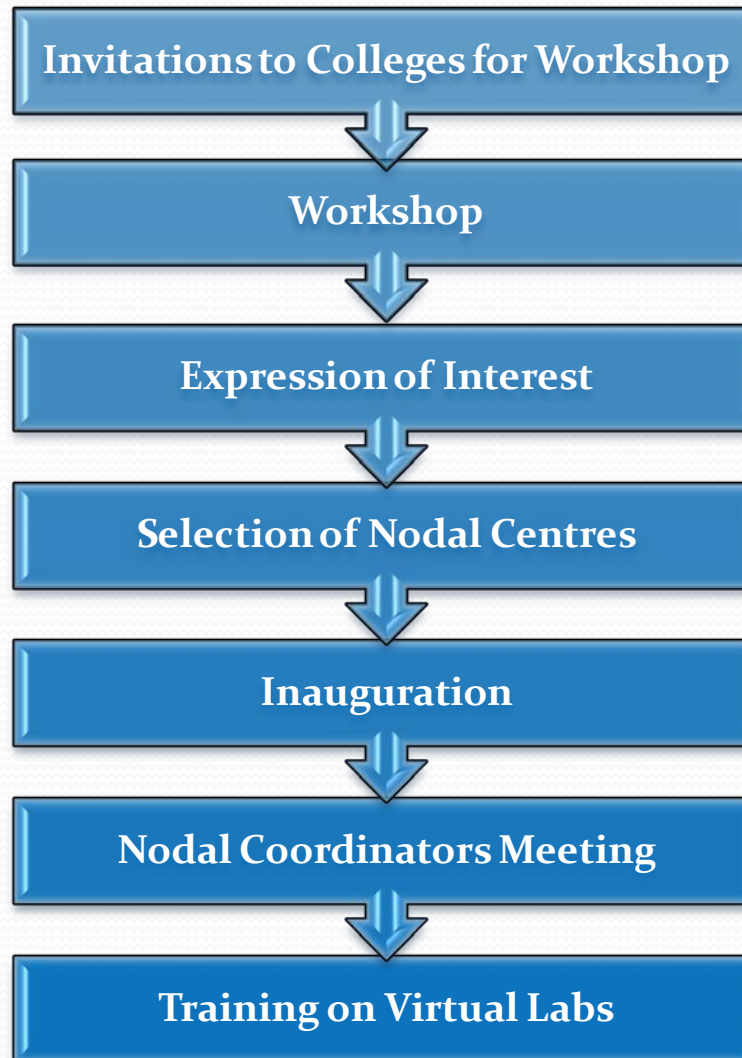
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METHODOLOGY

(4) OUTREACH OF VIRTUAL LABS

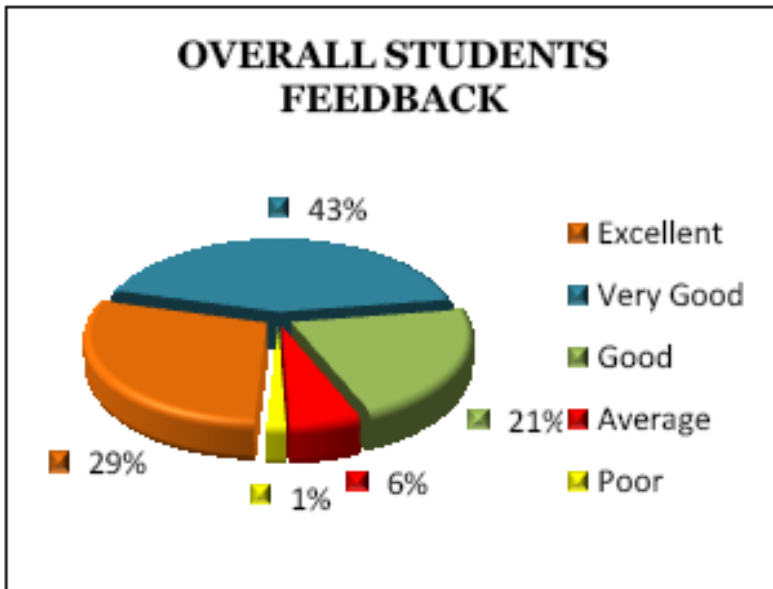
Private agencies/
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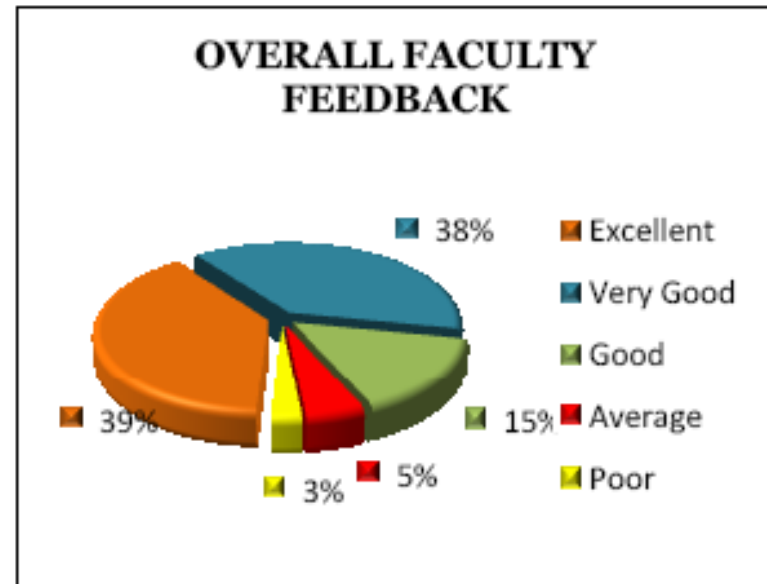
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- These forms will be compiled and analyzed. The bugs/shortcomings will be duly reported to the respective virtual labs developers for improvement.**

CURRENT ONLINE USAGE (GOOGLE ANALYTICS)

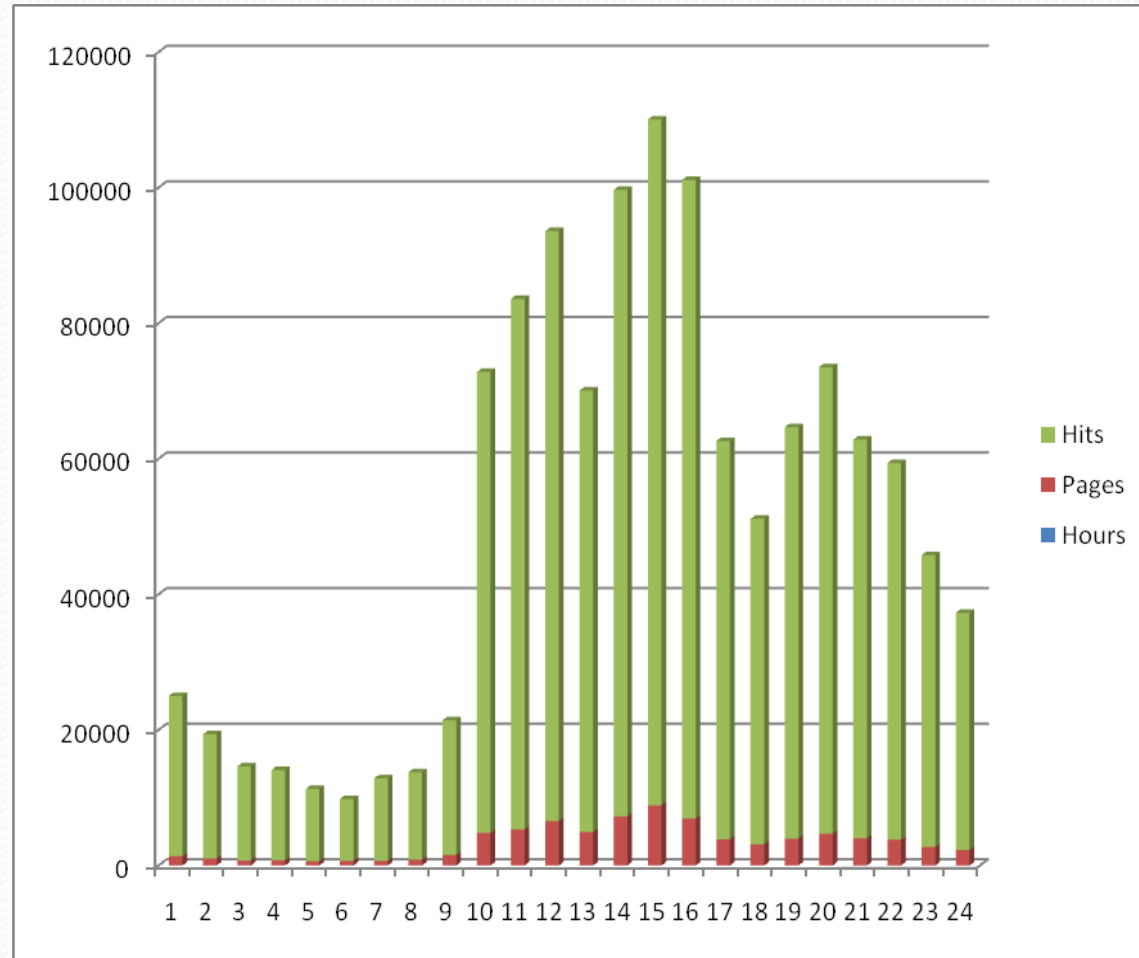


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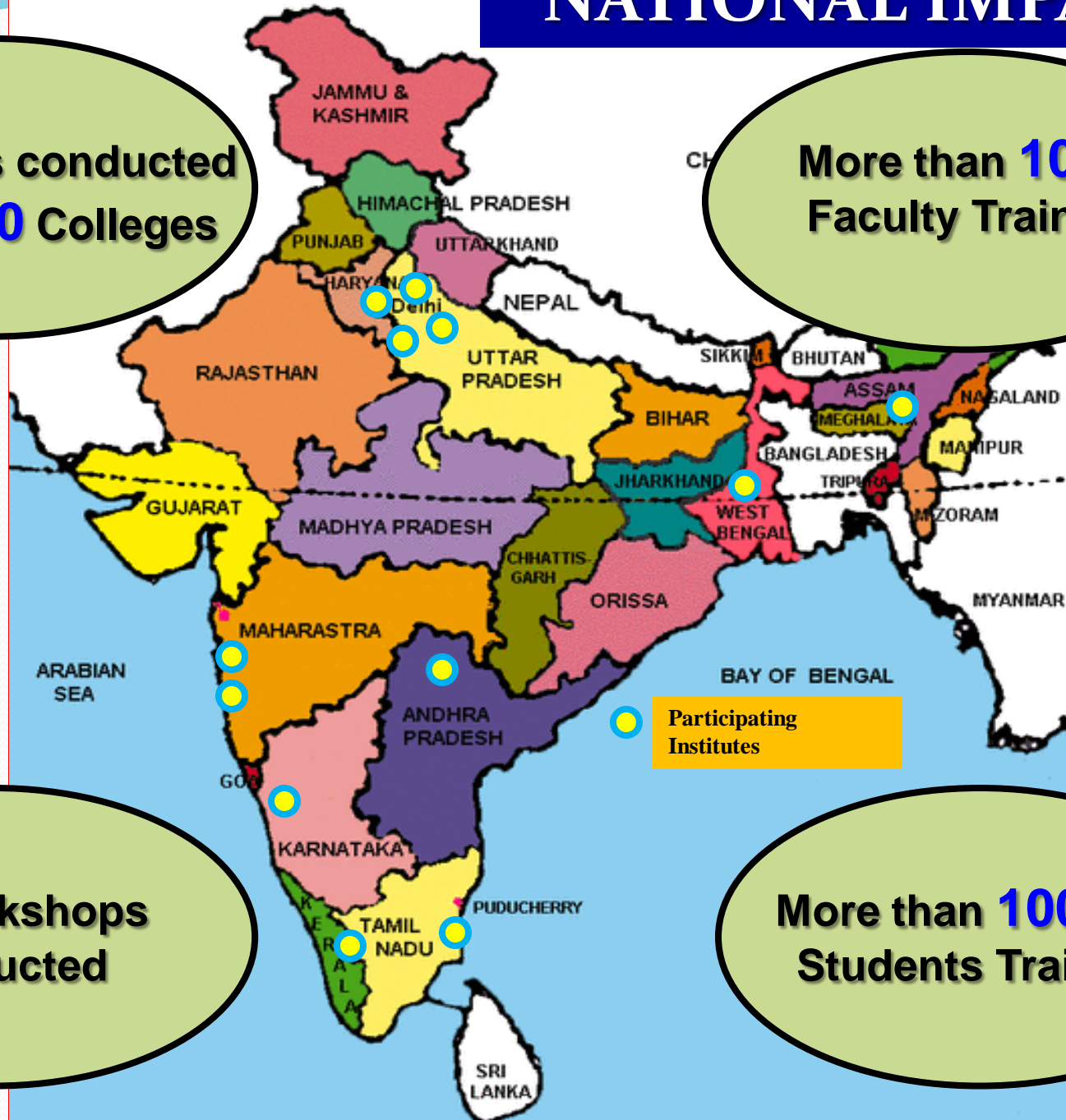


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NATIONAL IMPACT

Field Trials conducted in over **100** Colleges

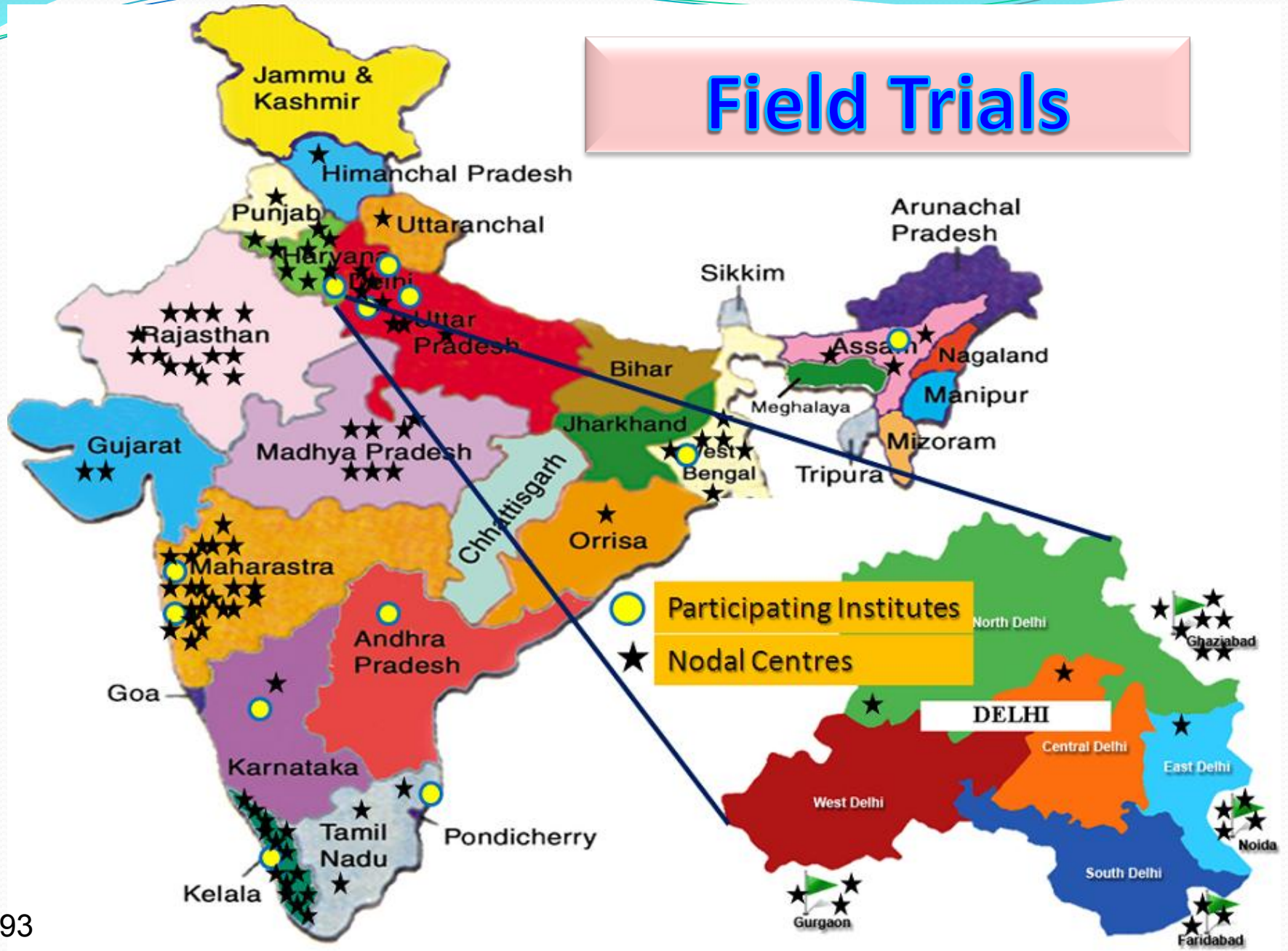
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36 Workshops Conducted

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Field Trials



PROPOSED OUTREACH PER YEAR

S.No	Name of PIC	Number of Nodal centers	Usages of Virtual Labs	Number of Workshops/ Remote Training	Total number of participants trained in workshops
1	IIT-D	25	54,000 *	5	500
2	IIT-R	25	54,000	5	500
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10	NIT-K	25	54,000	5	500
11	COE, Pune	25	54,000	5	500
12	Grand Total	300	6,48,000	55	5500

Nodal centres to increase to 27 and 30 during second and third years
Actual online usage will be much more than the above figures

METHODOLOGY

(5) TO IDENTIFY THE GAP AREAS BETWEEN THE TYPICAL SYLLABI OF TECHNICAL UNIVERSITIES AND THE EXISTING LABS AND TO DEVELOP ADDITIONAL LABS/EXPERIMENTS TO FILL THESE GAPS.

- The feedback of the academic as well as the user-community will be sought so as to fill-up the gap areas where Virtual Labs / Lab experiments are missing.
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Current status of proprietary software in virtual labs

Platform	Number of labs
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To be done by the integration engineers team backed by the central platform engineering team at IIT Hyderabad

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(7) TO PORT THE EXISTING LABS TO MOBILE PLATFORMS.

The lab developers will check the compatibility of their experiments with mobile platform. All compatible experiments shall carry an announcement in their regard to attract mobile platform users. Several experiments will necessitate rewriting. This will be done by the central platform engineering team headed by Prof. Venkatesh Choppella at IIT-Hyderabad.

METHODOLOGY

(8) TO IDENTIFY AND WORK WITH GOVERNMENT, PRIVATE AGENCIES AND PROFESSIONAL BODIES FOR GRANTING 'CERTIFICATE TO USERS OF VIRTUAL LABS'

- The students need to be suitably evaluated after they conduct experiments.
- The phase-II of the project will explore the possibility of engaging government and private bodies/agencies for certification

OVERALL BUDGET

S.No.	Items	Budget#			Total (in Lacs)
		First Year (in Lacs)	Second Year (in Lacs)	Third Year (in Lacs)	
1	Deployment and Outreach	264.5	289.03	319.39	872.92
2	Integration and Maintenance	861	928	1001.7	2790.7
3	Development of new experiments (300expt.x 3 Lacs/expt.)*	300	300	300	900
4	Honoraria	40	40	40	120
5	Central platform Engineering	587.5	566.05	490.88	1644.43
6	Data Centre	34.515	50.43	98.15	183.095
7	Software License	200	0	0	200
8	Reviews / Mid-term evaluations/Internal Workshops	62.67	62.67	62.67	188.01
	Total	2350.185	2236.18	2312.79	6899.16

BUDGET FOR OUTREACH

Name of the Institute	First Year			Second Year			Third Year		
	Number Usage	of Workshops	Budget (Lacs)	Number Usage	of Workshops	Budget (Lacs)	Number Usage	of Workshops	Budget (Lacs)
IIT Delhi	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Bombay	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Kanpur	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Kharagpur	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Roorkee	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Guwahati	32400 (15 NCs)	2	21.1	36720 (17NCs)	2	23.33	43200 (20NCs)	2	26.09
IIIT Hyderabad	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
Amrita University	129600 (60 NCs)	2	31.9	133920 (62NCs)	2	34.13	140400 (65NCs)	2	36.89
Dayalbagh University	54000 (25 NCs)	2	23.5	58320 (27 NCs)	2	25.73	64800 (30 NCs)	2	28.49
NITK Surathkal	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
COE Pune	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
Total	648000* (300NCs)	22	264.5	695520** (322NCs)	22	289.03	766800*** (355NCs)	22	319.39

PROPOSED USAGE THROUGH NODAL COORDINATORS

**25 NCs x 3 Experiments per Lab x 30 Students per lab x 3 years x 4 Branches
= 27,000 Usages per Semester (or 54,000 Usages per year)**

Typical yearly outreach budget for first year for an Institute

EXPENSE	AMOUNT (LACS)
Manpower: 3 field engineers per Institute	4 L x 3 (person) = Rs 12 L (Salary Rs 4 Lacs per annum per person, to increase by 10% for second and third year)
Honorarium for Nodal Coordinators	Rs 12*x1000 x 25 = Rs 3 L
Workshops	Rs 6 x 2**x1000 x 25 = Rs 3 L
Consumables (Stationery/ Printing/ Publicity material/Internet)	2.5 L
Miscellaneous expenses	2.0 L
Travel	1 L
101 Total	23.5 L

BUDGET FOR INTEGRATION AND MAINTAINENCE AT LOCAL (INSTITUTE) LEVEL

Name of the Institute	No. of Labs	No. of Engineers	1st Year (in Lacs)	2nd Year (in Lacs)	3rd Year (in Lacs)	Total (in Lacs)
IIT Delhi	6	7	48	51.5	55.35	154.85
IIT Bombay	11	13	83	89.5	96.65	269.15
IIT Kanpur	3	4	30	32	34.2	96.2
IIT Kharagpur	20	23	142	153.5	166.15	461.65
IIT Roorkee	3	4	30	32	34.2	96.2
IIT Guwahati	9	11	71	76.5	82.55	230.05
IIIT Hyderabad	20	23	142	153.5	166.15	461.65
Amrita University	20	23	142	153.5	166.15	461.65
Dayalbagh University	6	7	48	51.5	55.35	154.85
NITK Surathkal	5	6	42	45	48.3	135.3
COE Pune	11	13	83	89.5	96.65	269.15
TOTAL	114	134 *	861	928	1001.7	2790.7

BUDGET FOR INTEGRATION AND MAINTAINENCE
AT LOCAL (INSTITUTE) LEVEL.....Contd...

Manpower Required: 134 Engineers

Salary:

**Rs 5 Lacs per annum per engineer (annual
increment @10%)**

Internet usage :

Rs 5 lacs per Institute

Travel cost :

Rs 2Lacs per Institute

Consumables :

Rs 1 Lac per lab

BUDGET FOR CENTRAL PLATFORM ENGINEERING

Items	Budget (in Lacs)			
	First Year	Second Year	Third Year	Total
Salaries and Manpower	353.8	389.18	321.07	1064.05
Equipment	63.4	0	0	63.4
Consumables	24	26.40	29.04	79.44
Collaborations	25	27.50	22.69	75.19
Travel and Events	44.67	49.14	54.05	147.86
Sub Total	510.87	492.22	426.85	1429.94
Contingency @15%	76.63	73.83	64.03	214.49
Grand Total	587.50	566.05	490.88	1644.43

BUDGET FOR MID TERM REVIEWS

Travel/stay of experts (Rs 23,000 x 5 experts) = Rs 1, 15,000

Honoraria of experts (Rs 4,000 x 5 experts) = Rs. 20,000

Total = Rs. 1, 35,000 / discipline (for 5 experts)

New Experiments=1, 35,000; Integration=1, 35,000

Outreach=1, 35,000

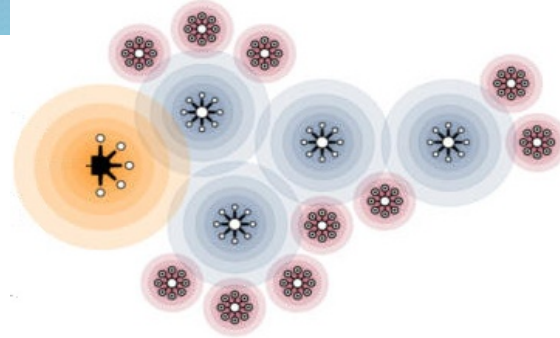
Total for 9 disciplines = 36, 45,000 (One review per year)

Travel/stay for Lab developers (Rs.23, 000 x 114) = Rs. 26, 22,000
(including old and new labs)

**Total (experts for 9 discipline + ALL lab developers)
= Rs 62, 67, 000/ year**

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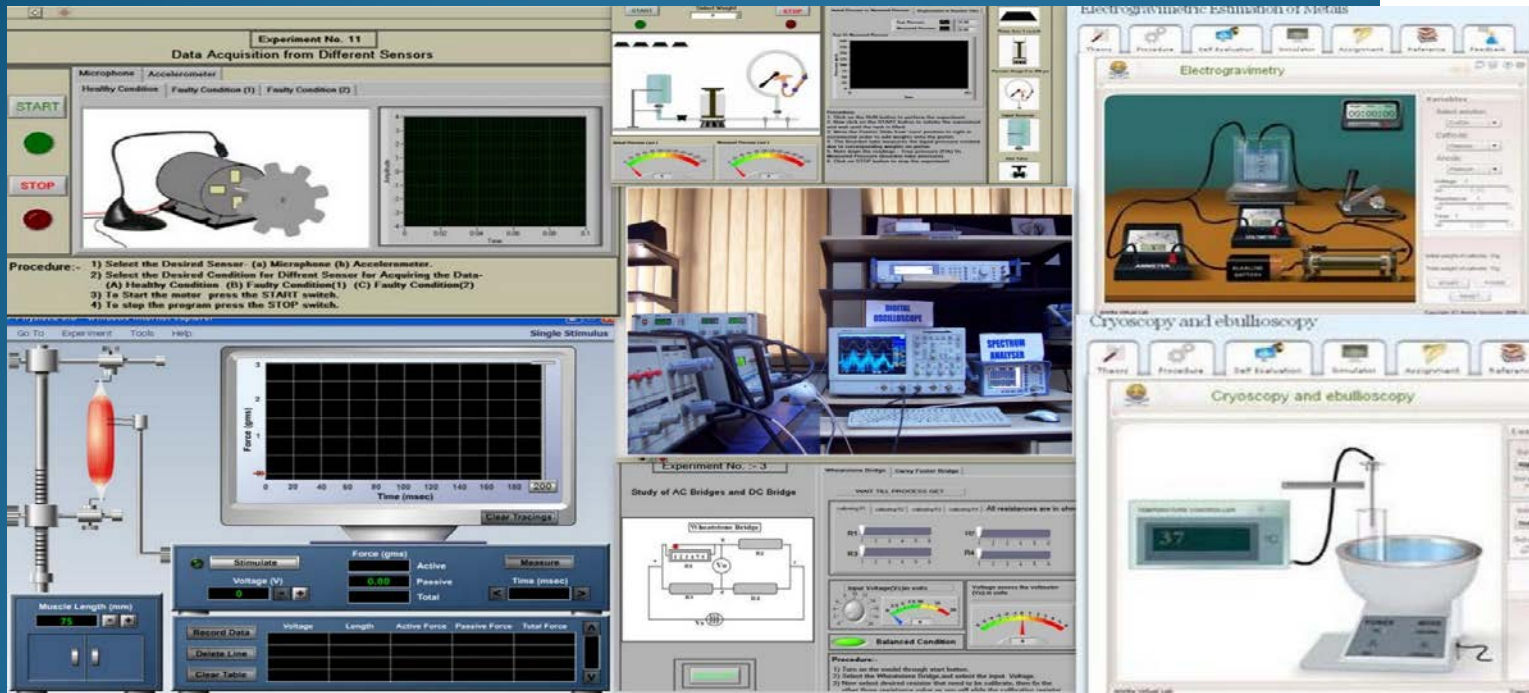


THANK YOU

*Virtual Labs Phase II: A Journey
From Concept To Reality*



Virtual Labs (Phase II)



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IIT Roorkee, IIT Hyderabad, Amrita University,
Dayalbagh University, NIT Surathkal, COE Pune

DETAILED PROJECT PROPOSAL

MISSION PROJECT

**Outreach, Integration and
Maintenance of Virtual labs
(PHASE-II)**

PEOPLE

PRINCIPAL INVESTIGATOR: Prof. R. K. Shevgaonkar
(Director, IIT Delhi)

Co- INVESTIGATORS: Prof. Ranjan Bose
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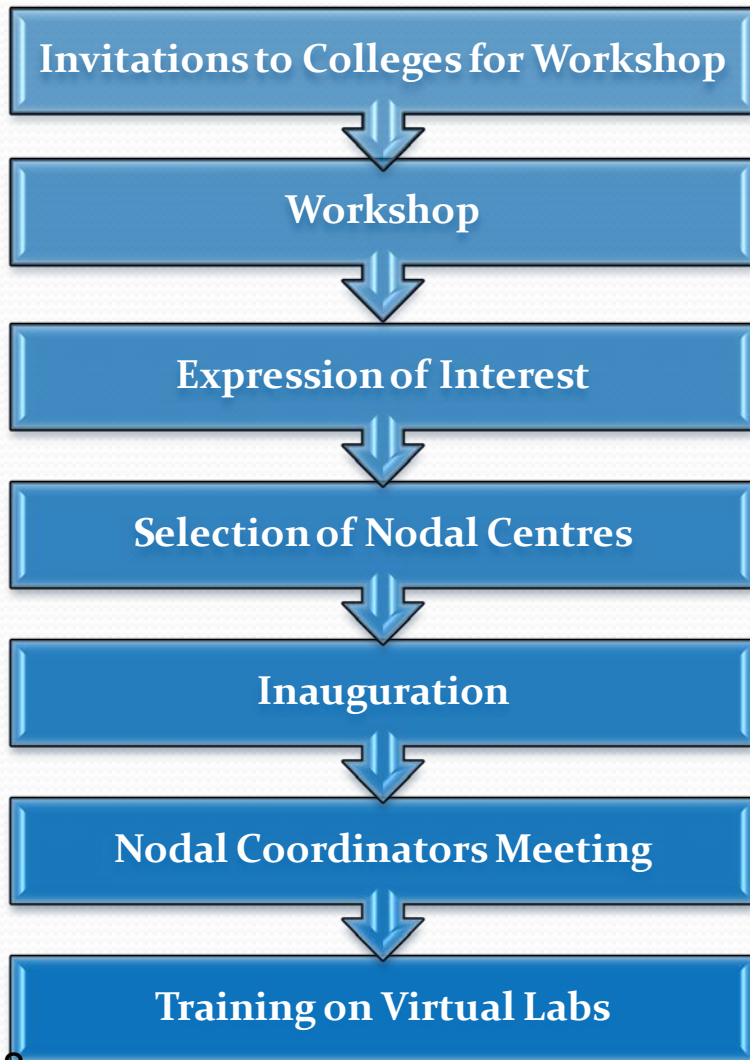
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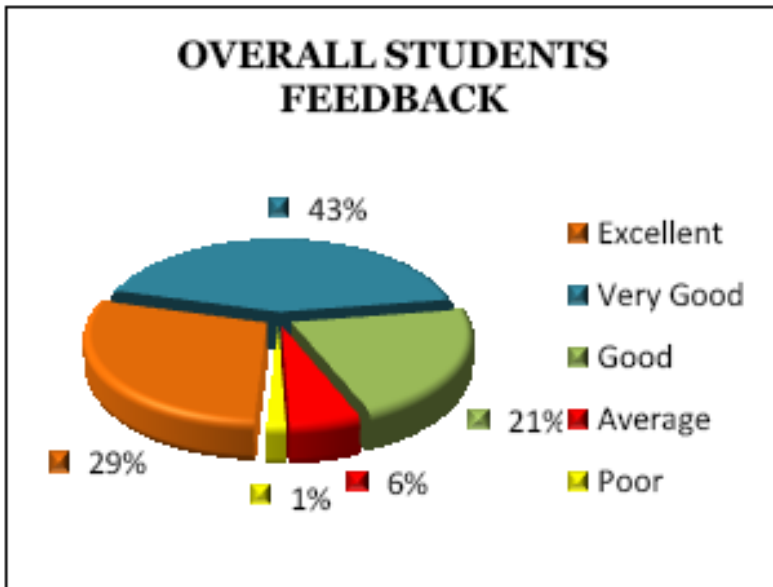


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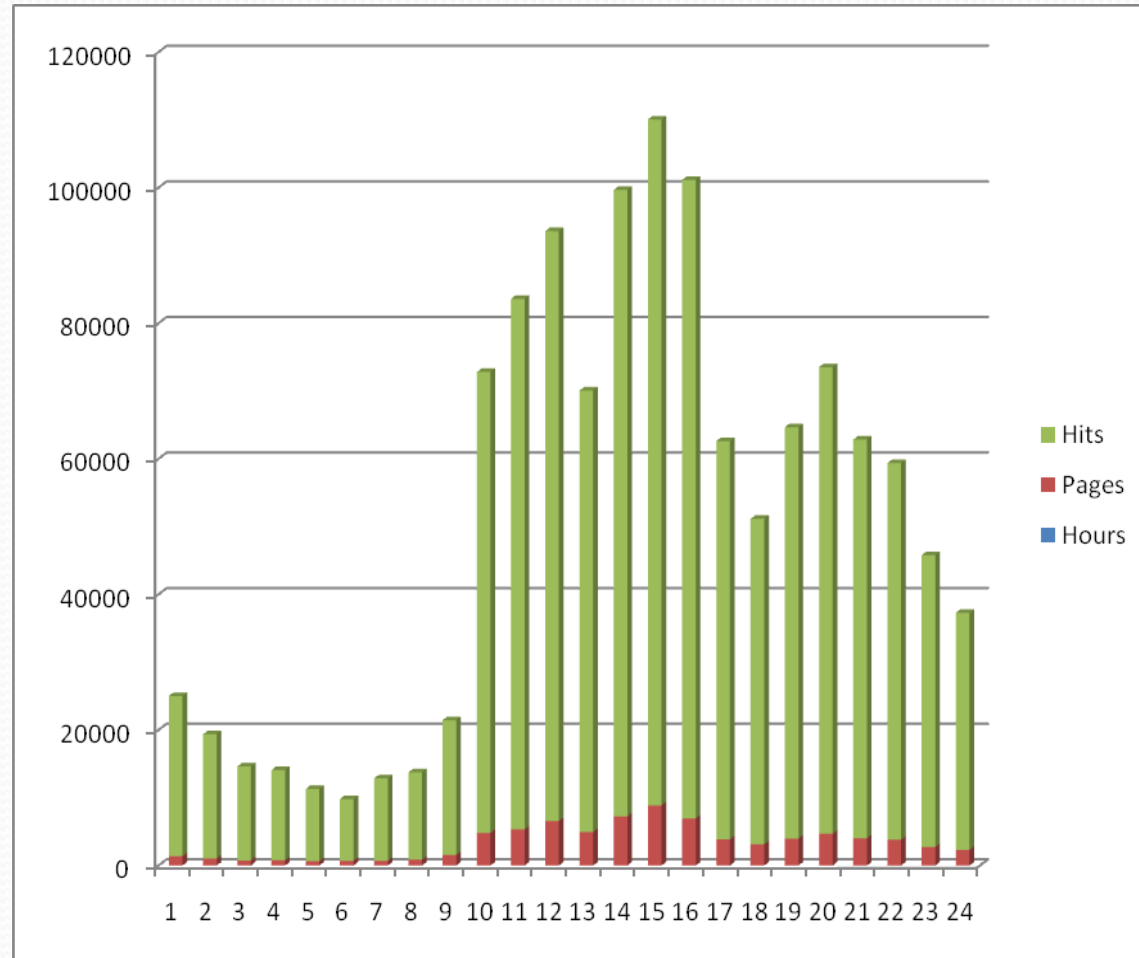


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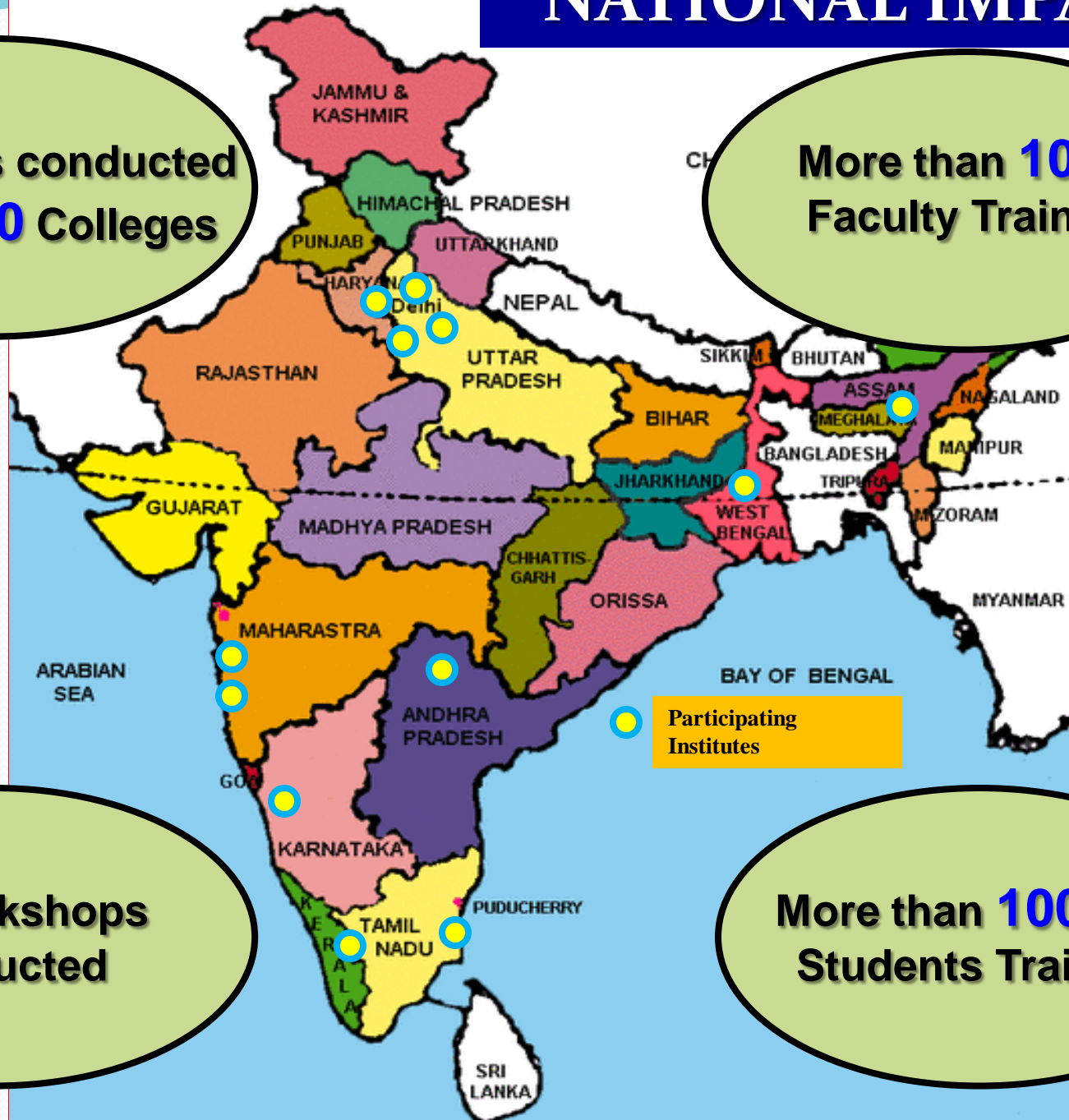


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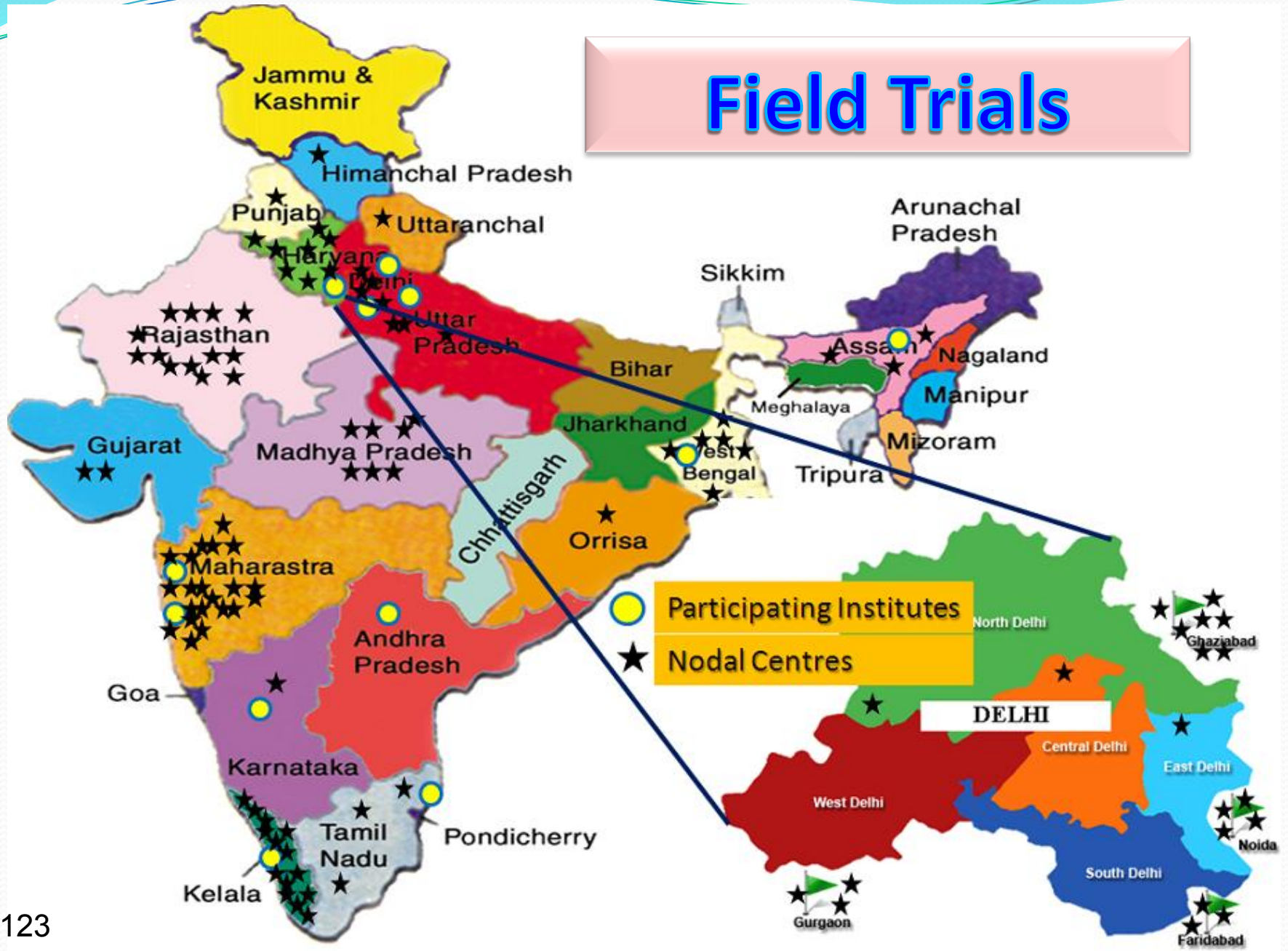
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	Total	2317.353	2212.22	2442.082	6971.655

BUDGET FOR OUTREACH

Name of the Institute	First Year			Second Year			Third Year		
	Number Usage	of Workshops	Budget (Lacs)	Number Usage	of Workshops	Budget (Lacs)	Number Usage	of Workshops	Budget (Lacs)
IIT Delhi	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Bombay	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Kanpur	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Kharagpur	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Roorkee	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
IIT Guwahati	32400 (15 NCs)	2	21.1	36720 (17NCs)	2	23.33	43200 (20NCs)	2	26.09
IIIT Hyderabad	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
Amrita University	129600 (60 NCs)	2	31.9	133920 (62NCs)	2	34.13	140400 (65NCs)	2	36.89
Dayalbagh University	54000 (25 NCs)	2	23.5	58320 (27 NCs)	2	25.73	64800 (30 NCs)	2	28.49
NITK Surathkal	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
COE Pune	54000 (25 NCs)	2	23.5	58320 (27NCs)	2	25.73	64800 (30 NCs)	2	28.49
Total	648000* (300NCs)	22	264.5	695520** (322NCs)	22	289.03	766800*** (355NCs)	22	319.39

PROPOSED USAGE THROUGH NODAL COORDINATORS

**25 NCs x 3 Experiments per Lab x 30 Students per lab x 3 years x 4 Branches
= 27,000 Usages per Semester (or 54,000 Usages per year)**

Typical yearly outreach budget for first year for an Institute

EXPENSE	AMOUNT (LACS)
Manpower: 3 field engineers per Institute	4 L x 3 (person) = Rs 12 L (Salary Rs 4 Lacs per annum per person, to increase by 10% for second and third year)
Honorarium for Nodal Coordinators	Rs 12*x1000 x 25 = Rs 3 L
Workshops	Rs 6 x 2**x1000 x 25 = Rs 3 L
Consumables (Stationery/ Printing/ Publicity material/Internet)	2.5 L
Miscellaneous expenses	2.0 L
Travel	1 L
131 Total	23.5 L

BUDGET FOR INTEGRATION AND MAINTAINENCE AT LOCAL (INSTITUTE) LEVEL

Name of the Institute	No. of Labs	No. of Engineers	1st Year (in Lacs)	2nd Year (in Lacs)	3rd Year (in Lacs)	Total (in Lacs)
IIT DELHI	6	7	45.8947	50.2842	55.15	151.3289
IIT BOMBAY	11	13	83.3070	91.4377	100.45	275.1947
IIT KANPUR	3	4	26.4473	28.8921	31.6	86.9394
IIT Kharagpur	20	23	146.6491	161.1140	177.15	484.9131
IIT Roorkee	3	4	26.4473	28.8921	31.6	86.9394
IIT Guwahati	9	11	70.3421	77.1763	84.75	232.2684
IIT HYDERABAD	20	23	146.6491	161.1140	177.15	484.9131
Amrita University	20	23	146.6491	161.1140	177.15	484.9131
Dayalbagh University	6	7	45.8947	50.2842	55.15	151.3289
NITK Surathkal	5	6	39.4122	43.1535	47.3	129.8657
COE Pune	11	13	83.3070	91.4377	100.45	275.1947
TOTAL	114	134 *	861	944.9	1037.9	2843.8

BUDGET FOR INTEGRATION AND MAINTAINENCE
AT LOCAL (INSTITUTE) LEVEL.....Contd...

Manpower Required: 134 Engineers

Salary:

Rs 5 Lacs per annum per engineer (increment @10%)

Internet usage :

Rs 5 lacs per Institute

Travel cost : Rs 2Lacs per Institute

Consumables : Rs 1 Lac per lab (increment 10%)

BUDGET FOR CENTRAL PLATFORM ENGINEERING

Items	Budget (in Lacs)			
	First Year	Second Year	Third Year	Total
Salary	351.52	386.672	425.3392	1163.5312
Equipment	72.1	0	0	72.1
Consumables	20	22	24.2	66.2
Travel and Events	31.5	34.65	38.115	104.265
Total	475.12	443.322	487.6542	1406.0962
Contingency/ Inst Overhead @15%	71.268	66.4983	73.14813	210.91443
Grand Total	546.388	509.8203	560.80233	1617.0106

BUDGET FOR MID TERM REVIEWS

Travel/stay of experts (Rs 23,000 x 5 experts) = Rs 1, 15,000

Honoraria of experts (Rs 4,000 x 5 experts) = Rs. 20,000

Total = Rs. 1, 35,000 / discipline (for 5 experts)

New Experiments=1, 35,000; Integration=1, 35,000

Outreach=1, 35,000

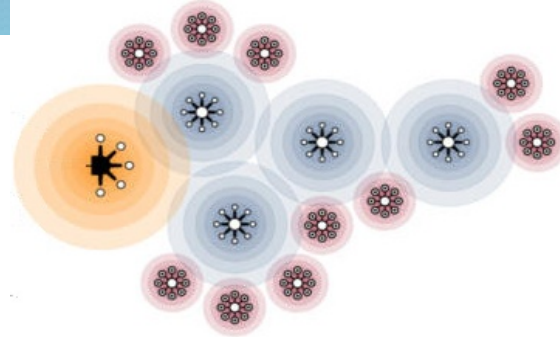
Total for 9 disciplines = 36, 45,000 (One review per year)

Travel/stay for Lab developers (Rs.23, 000 x 150) = Rs. 34, 50,000
(including old and new labs)

**Total (experts for 9 discipline + ALL lab developers)
= Rs 70, 95, 000/ year**

OVERALL BUDGET

S.No.	Items	Budget#			Total (in Lacs)
		First Year (in Lacs)	Second Year (in Lacs)	Third Year (in Lacs)	
1	Deployment and Outreach	264.5	289.03	319.39	872.92
2	Integration and Maintenance	861	944.9	1037.9	2843.8
3	Development of new experiments (300expt.x 3 Lacs/expt.)*	300	300	300	900
4	Honoraria	40	40	40	120
5	Central platform Engineering	546.388	509.8203	560.80233	1617.0106
6	Data Center	34.515	50.43	98.15	183.095
7	Software License	200	0	0	200
8	Reviews / Mid-term evaluations/Internal Workshops	70.95	78.04	85.84	234.83
	Total	2317.353	2212.22	2442.082	6971.655



THANK YOU

*Virtual Labs Phase II: A Journey
From Concept To Reality*

DELIVERABLES

Institute	No. of Labs
IIT Delhi	6
IIT Bombay	11
IIT Kanpur	3
IIT Kharagpur	20
IIT Roorkee	3
IIT Guwahati	9
IIIT Hyderabad	20
Amrita University	20
Dayalbagh University	6
NITK Surathkal	5
COE Pune	11
TOTAL	114

Phase wise
deployment of
labs:

Year 1: 40 labs

Year 2: 40 labs

Year 3: 34 labs

FOSSEE: Free and Open Source Software for Education

**Ashutosh Mahajan, Jayendran Venkateswaran,
Shiva Gopalakrishnan, Supratik Chakraborty,
Prabhu Ramachandran, Madhu Belur,
Mani Bhushan, Kannan Moudgalya**

IIT Bombay

**PAB Meeting, MHRD
New Delhi, 19 March 2014**

Outline of the Presentation

- ▶ **Phase I**
 - ▶ **Achievements**
 - ▶ **Systems and Processes**
 - ▶ **Financial Status**
- ▶ **Recommendations of SC, PAB and PRSG**
- ▶ **Phase II**
 - ▶ **Proposed activities, including new software and collaborators**
 - ▶ **Deliverables and Budget**



Objective: Empower students by means of Free and Open-Source Software (FOSS)

- ▶ Knowledge of various scientific computing tools in FOSS improves employability of students; increases their confidence; and they are better placed to learn proprietary/commercial software, if needed.
- ▶ FOSS is free to obtain, modify, share and distribute
- ▶ FOSS fuels curiosity

Financial savings for educational institutions

Phase I

Deliverables of Phase I

Activity	Proposed	Current Status
Live Workshops ¹	55	70
Remote SELF Workshops	–	874
Conferences	6	7
Textbook Companions	100	250
Spoken Tutorials	40	61
Course Conversion	5	5
Lab Migration	–	10

¹ 1 to 5 days workshop for students and teachers Online evaluation before issuing participation certificate

URLs of FOSSEE Websites - Phase I

- ▶ Scilab - <http://scilab.in>
- ▶ Python - <http://python.fossee.in>
- ▶ Oscad - <http://oscad.in>

Popularity of our Scilab Effort

- ▶ **Search by the term ‘scilab’ gives:**
 - ▶ scilab.in as the 1st hit in google.co.in
 - ▶ scilab.in as the 2nd hit in bing.com
 - ▶ scilab.in as the 3rd hit in google.com
- ▶ **Search by ‘scilab cloud’ gives:**
 - ▶ cloud.scilab.in as the 1st hit in google.com
 - ▶ cloud.scilab.in as the 1st hit in bing.com
- ▶ **We expect similar success in other FOSS systems as well in Phase II**

Textbook Companion Activity

- ▶ **Code for solved examples of textbooks in Scilab and Python**
- ▶ **Helps students understand solved examples**
- ▶ **Allows students to learn by modifying and experimenting with examples**
- ▶ **Excellent documentation for the open source software**
- ▶ **Focused search results**
- ▶ **Honorarium and certificates to participants**

Usage Stats for Scilab TBC on Cloud

Cloud page hits from Sept '13 - March '14

Sr. No.	Month & Year	Page Hits
1	Sep. 2013	2,802
2	Oct. 2013	9,715
3	Nov. 2013	6,058
4	Dec. 2013	15,498
5	Jan. 2014	1,52,104
6	Feb. 2014	9,724
7	Mar. 2014	4,354

Total Page hits: 2,00,000+

Completed Books: 250 books by 200+ unique users

Books in Progress: 300 books by 300+ unique users

better
education

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IIT BOMBAY

Textbook Companions for AICTE Books

TBC for AICTE approved standard textbooks:

FOSS	Completed	Under Progress
Scilab	48	28
Python	7	9

More AICTE approved books will be coded for TBC on priority basis in Phase II

Testimonials

Testimonial by Mohd. Arif - I

“Learning Scilab from the provided tutorials was easy. I am working in this internship from 3 months. This was my 2nd textbook companion. Scilab Team provided kind support all the time and replies to our query. I have already received honorarium for my last internship. This was very helpful in my academic activities. This also helped me to reduce the financial burden from my father.”

*Mohd. Arif, Department of Computer Science
Uttarakhand Technical University, Chandanwadi*

TBC: Fundamentals of Electronic Devices



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Testimonial by Viswanath Pasumarthi - I

“I had a previous knowledge of MATLAB, which helped me feel comfortable with Scilab interface in no time. The internship is a learning experience as well as benefiting from the financial aspect to any independent student. The surprising aspect is that the interface of Scilab is robust enough to perform decent set of engineering computational activities. The objective and contributions of the people behind this project are appreciable, and it should be remembered that there is a need to widely publicize the efficiency of the software and include more colleges/universities to participate in Lab Migration

Testimonial by Viswanath Pasumarthi - II

Project. Overall, it is a wonderful experience and I shall participate in Textbook Companion again.”

*Viswanath Pasumarthi, Dept. of Chemical Engineering
IIT Guwahati*

TBC: Numerical Methods for Scientists and Engineers

Testimonial by Avanesh Gupta - I

“I learnt Scilab from the video lectures and resources available on the website. Although my internship is not yet completed but I can definitely say that I learned a lot in the process. Using Scilab to do such complex calculations and plotting graphs made the subject much more interesting. Learning new softwares and tools are always a plus point for student’s profile. This project made the subject much more clear to me because I tried to think in a different way for the same problems. Moreover, If I am going to complete the internship, I will get a

Testimonial by Avanesht Gupta - II

summer internship certificate from IIT Bombay along with a stipend which will be useful.”

Avanesht Gupta

Department of Mechanical Engineering, IIT Bhubaneswar

TBC: Theory of Machines



Testimonial by Tanmay Agrawal

“I am very happy to give you my feedback regarding Scilab and this internship. During this internship, I didn't only learnt about programming aspect, it also helped me to strengthen my fundamental concepts of the subject. Mostly, I used “Matlab to Scilab conversion” feature of Scilab before submitting my codes as I have worked on Matlab from last two years. In my opinion, Scilab is a strong competitor for Matlab besides being open source.”

Tanmay Agrawal

Department of Mechanical Engineering, NIT, Hamirpur

FOSSEE Principles of Heat Transfer



Testimonial by Ashish Bora

“I learnt Scilab through online tutorials. It feels nice to have contributed to an open source knowledge repository.”

Ashish Bora

Electrical Engineering, IIT-Bombay

TBC: Basic Electrical Engineering

Testimonial by Nitin kumar

“I have learnt Scilab with the help of tutorials given on the website. My friends and mentor is also supporting me when I face any issue in the coding. This tool is very useful in computations and other academic activities. I have benefited from this internship, Since I no longer need to take Educational loan to pursue my study. I want to give thanks to complete Scilab Team.”

Nitin kumar

Department of Mechanical Engineering, NIT, Hamirpur

TBC: Turbomachinery Design and Theory



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IIT BOMBAY

Testimonial by K. Dheemanth - I

“I came to know about Scilab by Azeotropy 2k11 fest conducted in IIT-B, and there I attended Scilab workshop and came to know about Textbook Companion Project. I got introduction to Scilab in workshop and learned Scilab from the material provided in the workshop then in the coming summer I did internship under Textbook Companion Project and coded all the solved example problems of Process Systems Analysis and Control textbook into Scilab software (as per the rules of TextBook Companion Project only solved example problems should be coded). And I benefited from this

Testimonial by K. Dheemanth - II

internship in knowledge wise and monetarily also and got a certificate from IITB.”

K. Dheemanth

*Department of Chemical Engineering, UCT (A),
Osmania University, Hyderabad*

TBC: Process Systems Analysis and Control

Achievements of Phase I - Cont.

Details of money saved by various institutions by usage of FOSSEE components

--- Forwarded msg. From: Dr. Ashish Panchal <akp@eed.svnit.ac.in> ---
Date: Wed, 4 Dec 2013 23:54:14 +0530
To: belur@iitb.ac.in

Dear Sir,

In the year 2009-2010, S V National Institute of Technology had initiated the procedure for procuring MATLAB. In the mean time, Prof. M Belur and his team came to SVNIT Surat and introduced about similar freeware Scilab. They conducted introductory workshops/tutorials for the faculty and students. Thereon, the work was successfully transferred to Scilab instead of MATLAB. Hence the procurement of MATLAB tool boxes etc. were drastically reduced and we could save lot money because of introduction of such a freeware.

With regards.

Panchal Ashish K., Assoc. Prof.
Electrical Engineering Department, SVNIT
Ichchanath, Surat-395007
Gujarat, India.



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IIT BOMBAY

Email correspondence regarding AICTE's saving through the promotion of FOSS

--- Forwarded msg. From: Madhu N. Belur <belur@ee.iitb.ac.in> ---
Date: Tue, Nov 26, 2013 at 9:34 AM
Subject: AICTE money saved
To: kannan@iitb.ac.in
cc: Navdeep Singh <nmsingh@vjti.org.in>

Dear Kannan Sir,

I spoke to Prof. Navdeep Singh. The following lines are fine with him.

AICTE project evaluation committee saved about Rs. 2 crores due to various Faculty Development Programmes (FDPs) having been approved for only open-source packages like Scilab and Python. Many of the proposals are typically for Matlab: this involves extensive license purchase first for the FDP and later by the colleges too. A large percent of the proposals are about training in proprietary packages. We are told that AICTE FDP proposal committee has approved only FOSS equivalents thus saved the colleges and AICTE a huge amount.

Oscad - FOSS Equivalent for OrCAD

- ▶ Objective of NMEICT Document's line item
- ▶ New software developed at IIT Bombay for Electronic Design Automation - Preliminary Version in Phase I

Systems and Processes: Fruits of Phase I

- ▶ Developed a method for collaborative creation of Textbook Companions by students
- ▶ Implemented a strategy to upload, review and use code for individual examples - Extremely useful for students with no prior experience
- ▶ Implemented a Cloud version of Scilab
- ▶ Hosted Scilab TBC on GARUDA Cloud (cloud.scilab.in)
- ▶ Ported Scilab, Python and OScad on Aakash
- ▶ Established a Lab Migration procedure

Systems and Processes: Fruits of Phase I

... contd.

- ▶ **Provided domain expertise for SELF workshops (organised by the Spoken Tutorial team)**
- ▶ **Developed an online assessment method and question banks for SELF workshops**
- ▶ **Developed a method to offer FOSS training through T10KT**
- ▶ **Developed a cost effective Postal Campaign method for Nationwide popularisation of FOSS**
- ▶ **Prototyped an initial version of a Forum to provide domain specific support**

Systems and Processes: Fruits of Phase I

... contd.

- ▶ **Funding, expertise, support staff, infrastructure and work-culture in place to take up work on new FOSS systems**

Financial Status: Expenditure for Phase I

SC on 4 Dec. 2010 recommended Rs. 3.185 Crore
18th PAB Mtg. approved it on 24 Jan. 2011

Total amount received: Rs 3.185 Crore

Amount of funds spent: Rs 2.839 Crore

Balance amount: Rs 0.345 Crore (as on 7 Feb. '14)

#	Date	Amount Released
1	16 March 2011	0.950 Crore
2	27 March 2012	0.500 Crore
3	9 Sept. 2013	1.100 Crore
4	26 Dec. 2013	0.635 Crore

Recommendations

- ▶ **SC asked us to cover more open source software**
- ▶ **SC asked us to spread this activity to other institutions, by collaboration**
- ▶ **PAB reiterated the above observations**
- ▶ **PRSG recommended the same**

Phase II

Activities in Phase II

- ▶ **Consolidating the Gains of Phase I**
- ▶ **Extending the Capabilities of FOSS**
- ▶ **Advocacy, Promotion and Collaboration**

New FOSS Systems

- ▶ **COIN-OR:** A repository of FOSS for optimization and operations research (alt. to CPLEX, GUROBI)
- ▶ **OpenFOAM:** A toolkit for continuum mechanics in computational fluid dynamics (alt. to Fluent, StarCD and StarCCM+)
- ▶ **Oscad:** A complete EDA tool for electronics and electrical engineers (alt. to OrCAD)
- ▶ **SimPy:** A discrete event simulation language to model production and service systems (alt. to Arena, Anylogic)
- ▶ **OpenFormal:** Tools for formal verification of software and hardware systems

URLs of FOSSEE Websites - Phase II

- ▶ FOSSEE - <http://fossee.in>
- ▶ Scilab - <http://scilab.in>
- ▶ Python - <http://python.fossee.in>
- ▶ OpenFOAM - <http://cfd.fossee.in>
- ▶ Oscad - <http://oscad.in>
- ▶ OR-Tools - <http://or.fossee.in>

Other FOSS Systems

- ▶ **Some possibilities**
 - ▶ **R**
 - ▶ **OpenCL**
 - ▶ **OpenModelica**
 - ▶ **Open source replacement for Labview**
 - ▶ **Open source hardware**



Consolidating the Gains of Phase I: Textbook Companions and Lab Migrations

- ▶ **Scilab/Python TBC to be created for the remaining AICTE books**
- ▶ **More automation to ensure quick review process of TBCs, while maintaining large throughput**
- ▶ **Promotion of TBC and Lab Migration in Osdad, OpenFOAM and COIN-OR**
- ▶ **Promotion and support of all FOSS systems through the online forum**

Consolidating the Gains of Phase I: Conferences and Workshops

- ▶ In Phase I, we organised conferences for only Python
- ▶ Conferences serve as a good advertisement for the project across the country and encourage academic participation
- ▶ They are a platform to meet and interact with a large number of experts
- ▶ In Phase II, we will conduct conferences on other FOSS (Oscad, OpenFOAM, COIN-OR, Scilab) also

Extending Capabilities

- ▶ **GUI for OpenFOAM, COIN-OR, SimPy, OScad, etc.**
- ▶ **Integrating two or more FOSS systems together**
- ▶ **Adding new features**
- ▶ **Version control for textbook companion (like wikipedia)**
- ▶ **Online tests**



Advocacy, Promotion and Collaboration

▶ **Advocacy**

- ▶ Curriculum boards
- ▶ Meeting/Letters to VCs, DTEs

▶ **Promotion**

- ▶ Competitions
- ▶ Advertisements
- ▶ Postal campaigns
- ▶ Letters to authors of textbooks and their publishers

▶ **Collaboration**

- ▶ Identify & train new collaborator institutions



Advocacy, Promotion and Collaboration

TBC in Phase II: Challenges

- ▶ **Initially, easier books have been selected by students for coding - hence, the remaining books are more difficult**
- ▶ **Not all problems are amenable to be solved using a single FOSS system - two or more FOSS systems are required, increasing the work and the needed expertise**
- ▶ **Changes in our processes and systems to handle the above challenges**

Deliverables of Phase II at IIT Bombay

- ▶ **1,000 New Textbook Companions and Lab Migrations in all the FOSS systems**
- ▶ **Handholding students and teachers through forums, workshops and other help facilities**
- ▶ **Helping colleges adopt FOSS in their curriculum**
- ▶ **Popularising newly proposed FOSS systems**
- ▶ **Identifying and training collaborators**
- ▶ **Developing new and extending existing FOSS systems**
- ▶ **Working with the Aakash Team and helping them with domain support**

Budget for Phase II (Rs. Crore)

Head	I yr	II yr	III yr	Total
Salaries	1.05	1.40	1.80	4.25
Honorarium for TBC	0.69	0.88	0.95	2.52
Collaborators	0.50	1.00	1.50	3.00
Travel	0.20	0.25	0.30	0.75
Postal campaign	0.10	0.15	0.20	0.45
Other Promotional expenses	0.15	0.20	0.25	0.60
Conferences and workshops	0.20	0.25	0.30	0.75
Equipment	0.15	0.20	0.25	0.60
Web hosting expenses	0.05	0.10	0.15	0.30
Consumables	0.13	0.16	0.20	0.49
Other FOSS systems	0.00	0.50	1.00	1.50
Contingency	0.10	0.15	0.20	0.45
Coordinator's honorarium	0.08	0.10	0.15	0.33
Total	3.40	5.34	7.25	15.99

Explanation of Salary Head (Rs. Lakhs)

Activity	I Yr	II Yr	III Yr
Web pages	20	22	28
Forum support	10	15	20
Textbook companion	30	44	53
Wiki like evolution of TBC	0	9	10
Postal Campaign	5	10	12
Online test support	10	15	20
Help in conducting workshops	5	10	15
Promotion/Advocacy	5	5	10
Extending capabilities of FOSS	20	10	12
Total	105	140	180

Thank you

E-content development for 87 undergraduate subjects under NME-ICT project of MHRD

NME-ICT Control No: DE-19111011541

Implementing Agency:

Consortium for Educational Communication

IUAC Campus, Aruna Asaf Ali Marg,

New Delhi – 110067

website: www.cec.nic.in

Prof. Rajbir Singh

About CEC

- **CEC an Inter University Centre was established by University Grants Commission (UGC) on 26th May 1993 under section 12(ccc) of its act.**
- **CEC is a nodal agency at National level, to address the educational needs of the country through the use of various modes of communication such as TV, Radio, EduSat and Internet.**

Consortium Members

- CEC has 22 Educational Multimedia Research Centres (EMRCs) located in various State and Central Universities across the country.
- At present 17 Centres are operational and 5 Centres at Bhubaneswar, Puducherry, Lucknow, Gaya & Dibrugarh have been setup by UGC recently.
- These Centres are engaged in production of Video & Multimedia based programmes since more than 28 Years.
- Centres have about 500 trained manpower & state of art equipments.

Mapping of Consortium Members



CEC Knowledge Resource Repository

- CEC Media Centres have been pioneer in production of Educational Television programmes (ETV) both enrichment and curriculum based content since last 28 years.
- CEC has one of the largest repository which includes –
- More than 22,500 Educational Video programmes.
- More than 6836 e-content modules.
- More than 1500 short learning objects.
- More than 2200 video programmes, e-contents, LOR etc., are added to the repository annually.

Multimode Dissemination of Education content

- **DTH Broadcast** : 24X7 Vyas Higher Educational Channel being telecast since **26th January, 2004**. which is available on DTH Platform of **DD Direct Plus** and **Dish TV**.
- **EDUSAT** : UGC-CEC nationwide two way interactive EDUSAT network with installed notes of over 100 Satellite interactive Terminals (SITs) and 71 ROTs
- **Migratory Teaching End** : The CEC has unique Migratory Teaching End facility.
- Two hours transmission of EduSat Live lectures from the month September 2013. Subject experts are invited and regular live transmission takes place from the CEC.
- **Youtube** : The programmes transmitted on EDUSAT is also available on www.youtube.com/edusat.

Non Broadcast Mode

Webcast:-

To increase the reach and access of Educational content CEC has recently made available the Vyas 24x7 Higher Education Channel on web portals such as-

CEC web portal:

www.cec.nic.in,

Govt. of India webcast :

www.webcast.gov.in,

MHRD Educational web portal:

www.sakshat.ac.in

- Distribution of ETV programmes through DVD/CD on demand by the viewer. For making copies of the DVD/CD CEC has also installed multiplication facilities.

E-content Development of 87 UG subjects under NME-ICT

- The MHRD vide its communication dated 31st March, 2009 has approved a Project Proposal for e-content development to CEC in 87 under graduate subjects.
- MHRD released an amount of Rs. 50,00,000/- on 15th July, 2009 towards pilot project. A total of 65 modules were produced and submitted to MHRD. After acceptance of the pilot modules by MHRD the pilot project was closed.
- After receiving the initial funds in March, 2011, CEC Media Centres started producing the e-content courseware in allotted subjects.
- CEC Media Centres developed an e-content template in four quadrant following instructional design methodology.

Four quadrant approach in E-content development

<p>1st Quad Text Resources</p> <p>Textual Document, PDF / e-Books / illustration, documents & Interactivity wherever required Simulations, Virtual Labs</p>	<p>2nd Quad Visual Resources</p> <p>Video and Audio Content in an organized form, Animation,</p>
<p>3rd Quad Web Resources</p> <p>Related Links, Wikipedia Development of Course, Open content on Internet, Case Studies, Anecdotal information, Historical development of the subject, Articles</p>	<p>4th Quad Self Assessment</p> <p>MCQ, Problems, Quizzes, Assignments, & solutions, Online feedback through discussion forums & setting up the FAZ, Clarifications on general misconceptions etc.</p>

CEC e-Content template



Consortium for Educational
Communication, India



सत्यमेव जयते



HOME

CONTACT

NME-ICT, MHRD

National Mission on Education
through ICT

OBJECTIVES

SUMMARY

VIDEO / AUDIO

SEARCH

TEXT

ASSIGNMENT

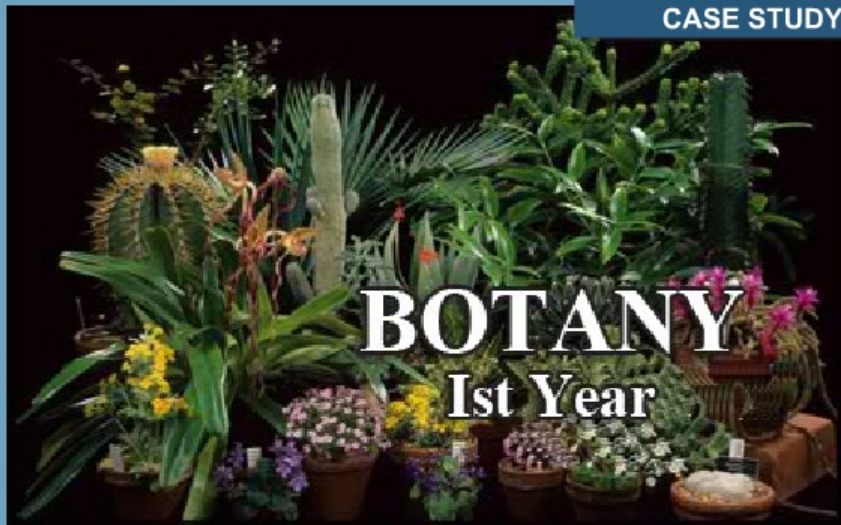
REFERENCE

DOWNLOAD

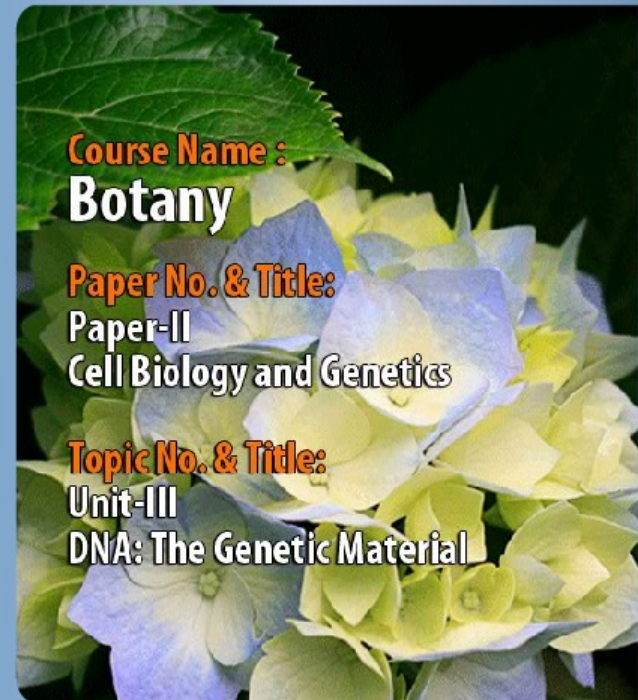
BLOG

FAQs

CASE STUDY



BOTANY
Ist Year



Course Name :

Botany

Paper No. & Title:

Paper-II
Cell Biology and Genetics

Topic No. & Title:

Unit-III
DNA: The Genetic Material

Empowering through e-Education

Unique Features of CEC e-content module

- Maintaining highest Audio/Video quality
- Production of e-content in complete 4 Quadrants
- Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules
- Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
- E-content certification and validation in two stages
- Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter
- Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.

Subjects allotted to Media Centres under Phase - I (29 Subjects)

CEC has completed e-content courseware in 8 subjects and uploaded on Sakshat portal and CEC web portal as below:

1.History	-	356
2.Botany	-	279
3.English Language	-	131
4.Environmental Science	-	76
5.Anthropology	-	193
6.Mathematics	-	379
7.Hindi Language	-	141
8.Photography	-	27

Production of e-content courseware in remaining 21 UG subjects

Contd...

Sr. No.	Subject Allotted	Media Centres	E-content Developed till January, 2014
1	B.A. Economics	Hyderabad Osmania	202
2	B.A. Communication & Journalism	MCRC Jamia	205
3	B.Sc. Zoology	Ahmedabad	120
4	B.Com Commerce	Jodhpur	712
5	B. Sc. Computer Science	Chennai	315
6	B.A. Geography	Mysore	204
7	B.A. Performing Arts	Patiala	247
8	B.A. (Hons.) English Literature	Hyderabad ELFU	299
9	B.A. Hindi Literature	Indore	213
10	B.A. Business Management	Pune	44
11	B.Sc. Chemistry	Roorkee	109
12	B.Sc. Geology	Sagar	78
13	B.Sc. Applied Physical Sciences (Electronics)	Chennai	82
14	B.A. Sociology	Madurai	385
15	B.Sc. Applied Life Science (Sericulture)	Mysore	94
16	B.A. Psychology	EFLU Hyderabad	196
17	B.Sc. (Hons) Microbiology	Kolkata	73
18	B.Sc. Agriculture (1 st Year)	Jodhpur	13
	B.Sc. Agriculture (2 nd Year)	Madurai	0
	B.Sc. Agriculture (3 rd Year)	Imphal	0
19	B.Sc. Applied Physical Sciences (Computer Science)	Patiala	161
20	B.Sc. (Hons) Statistics	Mysore	190
21	B.Ed.	Calicut	154

Financial Implications for Phase-I

- **Phase I-Total** 10295 modules for 29 subjects @ 355 modules per subject @ Rs. 17,500/- per modules
- Expenditure for e-content modules Rs. 10295 X 17,500/- = Rs. 18,01,62,500/-
- Workshops/training 10 nos. @ Rs. 2,00,000/- per workshop = Rs. 20,00,000/-
-
- **Total for Phase – I = Rs. 18,21,62,500/-**

• Release of Funds by MHRD and Utilization

From the sanctioned amount of Rs. 18.50 Crores, as mobilization advance ,MHRD has so far released the grant of Rs. 16.42 Crores for Development of e-content courseware. The details are given below:

Sl. No	Grants Received	Amount	Utilization Certificates submitted
1	Sanction letter No.16-38/2009-DI dated 31.03.2009	Rs. 50.00 Lakhs	CEC/JD(HW)/MHRD Project/09/18132 25 th March, 2010
2	Sanction letter No. 16-38/2009-DI dated 28.02.2011 Grants Received on 09.03.2011	Rs. 05.40 Crores	CEC/SW/NME-ICT/2011/10130 23 rd September, 2011
3	Sanction letter no. 16-38/2009-DI dated 16.12.2011 Grants Received on 02.01.2012	Rs. 03.00 Crores	CEC/SW/NME-ICT/2012/22328 13 th March, 2013
4	Sanction letter no. 16-38/2009-DI dated 28.03.2012 Grants Received on 31.03.2012	Rs. 03.10 Crores	CEC/SW/NME-ICT/2012/22328 13 th March, 2013
5.	Sanction letter F-16-38/2009-DI dated 18 th February, 2014	Rs. 4.42 Crores	
Total Grants Received till date		Rs. 16.42 Crores	

Financial implication under Phase-II

- No. of Modules to be produced $58 \times 355 = 20,590$ modules
- Total 20595 modules for 58 subjects @ 355 modules per subject @ Rs. 34,000/- per modules
- Expenditure for e-content modules Rs. $20590 \times 34,000/-$
= Rs. 70,00,60,000/-
- Workshops/training 58 subjects @ Rs. 2,00,000/- per subject = Rs. 1,16,00,000/-
- **Total for Phase – II = Rs. 71,16,60,000/-**

Subjects allotted to Media Centres under Phase - II (58 subjects)

Sr. No	Subject Allotted	Media Centres	E-content Developed till January, 2014
1	B.A. (Hons) Urdu (1 st Year)	Srinagar	16
	B.A. (Hons) Urdu (2 nd Year)	EFLU Hyderabad	0
	B.A. (Hons) Urdu (3 rd Year)	MCRC, Jamia	0
2	B.A. (Hons) Music (Ravindra Sangeet)	Kolkata	0
3	B.A. (Hons) Political Science	Kolkata	0
4	B.A. (Hons) Hindi Journalism	MCRC, Jamia	0
5	B.A. (Hons) Philosophy	Calicut	74
6	B.A. (Hons) Business Economics	Ahmedabad	06
7	B.A. (Hons) Sanskrit (1 st Year)	Ahmedabad	0
	B.A. (Hons) Sanskrit (2 nd Year)	Roorkee	0
	B.A. (Hons) Sanskrit (3 rd & 4 th Year)	Chennai	0
8	B.A. (Hons) Music (Karnataki Sangeet)	Madurai	0
9	B.A. (Hons) Music (Hindustani Classical)	Pune	34
10	B.A. (Hons) Social Work	Hyderabad Osmania	10
11	B.A. Vocational Studies (Book Publishing)	Kolkata	0
12	B.A. Management & Marketing of Insurance (1 st & 2 nd Year)	Jodhpur	101
	B.A. Management & Marketing of Insurance (3 rd Year)	Hyderabad Osmania	0
13	B. A. (Foreign Language) French & Spanish	EFLU Hyderabad	0
14	B.A. Fine Arts	MCRC Jamia	23
15	B.A. in Film Studies	Kolkata	0
16	B. A. Vocational Studies (Advertisement)	Indore	06
17	B. A. Vocational Studies (Accounts)	Indore	05
18	B. A. Vocational Studies (Office Audit)	Indore	01

19	B. A. Vocational Studies (Computer)	Indore	29
20	B.A. Human Rights	Imphal	48
21	B.A. Tourism	Mysore	36
22	B. A. Human Resources Management	Pune	64
23	B.A. Social Welfare Administration	Madurai	0
24	B. A. Vocational Studies	Mysore	0
25	B. A. Marketing Management & Retail Business	Jodhpur	121
26	B.A. Office Administration & Secretarial Practice	Pune	17
27	B.A. Public Administration	Hyderabad Osmania	08
28	B.A. LLB (1 st & 2 nd Year)	Srinagar	119
	B.A. LLB (3 rd , 4 th & 5 th Year)	EFLU Hyderabad	14
29	B. A. Vocational Studies - Mass Communication Video Production	Kolkata	47
30	B. A. Population Studies	Patiala	0
31	B. A. Education	Srinagar	01
32	B.Sc. (Hons) Food Technology (1 st Year)	Srinagar	11

	B.Sc. (Hons) Food Technology (2 nd & 3 rd Year)	Mysore	06
33	B.Sc. Life Sciences (1 st Year)	Ahmedabad	14
	B.Sc. Life Sciences (2 nd Year)	MCRC, Jamia	01
	B.Sc. Life Sciences – 3 rd Yr.	Imphal	0
34	B.Sc. Analytical Methods in Chem & Bio-Chem	EFLU Hyderabad	0
35	B.Sc. (Hons) Home Science	EFLU Hyderabad	07
36	B.Sc. (Hons.) Bio-Medical Sciences	EFLU Hyderabad	0
37	B.Sc. (Hons) Electronics	Jodhpur	38
38	B.Sc. (Gen) Mathematical Science	Chennai	27
39	B.Sc. (Hons) Polymer Science	Chennai	16
40	B.Sc. Physics (Hons.)	Chennai	59
41	B.Sc. Agro-Chemical and Pest Control	Mysore	0
42	B. Sc Bio-Informatics	Calicut	03
43	B.Sc. Applied Physical Sciences (Environmental Science)	Chennai	44
44	B.Sc. Applied Physical Sciences (Industrial Chemistry)	Roorkee	27
45	B.Sc. (Hons) Bio-Chemistry – 1 st Yr.	Hyderabad Osmania	0
	B.Sc. (Hons) Bio-Chemistry – 2 nd & 3 rd Yr.	Madurai	01
46	B.Sc. Physical Sciences	Hyderabad	0
		Osmania	
47	B. Arch.	Chennai	01
48	B.Ed. (Special Education for Visually Impaired)	Madurai	06
49	B.Ed (English)	EFLU, Hyderabad	0
50	B.El.Ed. (Elementary Education)	Madurai	0
51	B.Lib.Sc.	Calicut	13
52	B.P.Ed. (1 st & 2 nd Year)	Patiala	0
	B.P.Ed. (3 rd Year)	Imphal	0
53	B. Pharmacy	Sagar	0
54	BFA Painting Applied Art Sculpture / Epigraphy	Calicut	30
55	BFA Painting Applied Multimedia	Calicut	04
56	Bachelor for Theatre Arts	Calicut	38
57	Bachelor of Business Studies	MCRC, Jamia	26

Outsourcing e-content production in Phase - II

- A provision was made in phase-II of the CEC project proposal for e-content production , for outsourcing the production.
- In this regards , CEC has already framed a outsourcing policy document in which provision has been made to empanel reputed production houses/agencies for production of e-content and other e-learning content.
- To meet out the growing demand of Educational content, we need to outsource some production activities to the established and reputed production houses or agencies.
- This outsourcing document stipulates that CEC and Media Centre would ensure the quality of production through a sound mechanism of validation and certification.



Thank You

A Comparison of Present and Proposed Expenditure per e-content module March, 2014

S. No.	Description of items for payment	Present Amount for Module cost is Rs. 17,500/-	Proposed Amount for Module cost Rs. 34,000/-	Reference rates based on which payments are being made in column 2 & 3
1	2	3	4	4
1	Subject Co-ordinator	Rs. 1000/-	Rs. 1000/-	As per e-content DPR
2	Subject expert/ Resource person a. For Research (Background work for reference material field visits etc.) b. For providing objectives, summary, Downloadable (PDF) text, Transcript, case studies, FAQ`s, Assignments, Quiz, tutorial References, Glossary, Web References etc. c. Onscreen presentation by the subject expert	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000 - 5000/- * Rs. 2000 - 8000/- * Rs. 1000 - 2000/- *
3.	For production of ETV programme/Video modules a. Hiring /purchase of Equipment, facilities. b. Hiring/engagement of Human resources on contract basis as permissible under project for timely and successful completion of the project. c. Preproduction, Studio Recording, Music composition, Post production etc. (Presently CEC and Media Centre production facilities are being used at optimum and the expenditure is borne by Debit to UGC grants which is available only for limited no. of Video programmes. However as per DPR in Phase - II the production is also proposed to be outsourced.)	CEC e-content module has four quadrants where Audio/Video is the major quadrant. At present there are no funds available for Video production under NME-ICT.	Rs. 5000/- Rs. 5000/-	As per UGC funding for production of ETV programme.
4.	Freelance/hired Editors payment per e-content/ ETV programme for 4 shifts @ Rs.1000/- per shift (Presently Rs. 2,000/- is borne by Debit to UGC grants which is available only for limited no. of Video programmes. However as per DPR in Phase - II the production is proposed to be outsourced.)	Rs. 2,000/- which is not sufficient for Assembling, Editing, Down Converting and Chucking for Video Programmes.	Rs. 4000/-	Rs. 500 – 1000/- * Per shift
5.	Freelance/hired Graphics Artist/Animator/Module Integrator per e-content for 4 shifts @ Rs.1000/- per shift	Rs. 4000/-	Rs. 4000/-	Rs. 1500 – 2000/- * Per shift
6.	Honorarium to PI, Co-PI and staff as permissible under project for timely and successful completion of the project as permissible under project.	Rs. 500/-	Rs. 1500/-	Approx. 5% of Module cost
7.	E-content certification and validation (Presently borne by Debit to UGC grants which is available only for limited no. of Video Programmes) (a) 1 st stage at Media Centres by subject experts and production team	At present there are no funds available for quality certification and validation under NME-ICT.	Rs. 1000/-	The Honorarium being paid to experts for preview of programmes at CEC and Media Centres Rs. 1000/-

	(b) 2 nd stage at CEC by Peer group		Rs. 1000/-	Rs. 1000/-
8.	Sub Total		Rs. 31,000/-	
9.	Contingency including transport, consumables, Integration activities, PRSG meeting, dissemination and outreach activities etc.	Rs. 1500/-	Rs. 3000/-	Approx. 10% of the Module cost
	Total 8+9	Rs. 17,500/-	Rs. 34,000/-	

Note:- 1. Rates as per UGC approved rates vide * CEC Order no.: CEC/2-65/Estt/GB/04- dt: 26th Aug., 2004

2. The above expenditure heads have been work out based on detailed work study for various production stages of e-content production , time frame for production of one module and actual expenditure involved at each stage depending on the past experience of Media Centres in production of e-content modules stickly in four quadrants under Phase-I.

3. The CEC e-content are produced in four quadrants which includes –

1st Quad - Text Resources - Textual Document, PDF / e-Books / illustration, documents & Interactivity wherever required Simulations

2nd Quad - Visual Resources - Video and Audio Content in an organized form, Animation,

3rd Quad - Web Resources - Related Links, Wikipedia Development of Course, Open content on Internet, Case Studies, Anecdotal information, Historical development of the subject, Articles

4th Quad - Self Assessment - MCQ, Problems, Quizzes, Assignments, & solutions, Online feedback through discussion forums & setting up the FAZ, Clarifications on general misconceptions etc.

4. The proposed increased in cost per module from Rs. 17,500/- to 34,000/- was worked out by MHRD pricing committee for e-content production headed by Prof. K. Mangalasunder, IIT Madras.

E-CONTENT PRODUCTION COST PER MODULE FOR CEC AND MEDIA CENTRES

Phase – I – Total 10295 modules for 29 UG subjects are to be produced

Under Phase –I , CEC and Media centres are incurring expenditure per e-content module cost of Rs.31,500 out of which Rs.17,500 was provided by NME-ICT as that amount was the permitted amount by PAB, though CEC and Media Centres had submitted per module cost of Rs. 35,000/- with the project proposal submitted in 2009 under NME-ICT to the MHRD. Rrest of Rs.14,000 is being booked against the Video programme production money received from the UGC under non -salary grants. Thus, the actual production expenditure incurred on e-content module is Rs. 31,500/- (Rs. 17,500 + Rs. 14,000)

UGC releases some money under non-salary heads which includes funds for production of video programmes .Approx. Rs. 10 Lakhs is provided to each Media Centres for a total 17 Media Centres for. the enrichment based Video programme production . Grants released by UGC is only sufficient for meeting out additional expenditure of Rs.14,000 per module for only **1214** modules per year .

However, the non-salary grants which include the Video programme production grants also from UGC are not very regular and for some years the funds are not made available to Media Centres under this head . Most of the times the UGC grants are not even sufficient to meet the salary and Maintenance requirement.

Video programme production grant under the non-salary head received from UGC during the years 2009-10, 2011, 2012, 2013, 2014 has been utilized to also meet out expenditure for producing **6836 e-content** modules.

2009-2010	2012-2011	2011-2012	2012-2013	2013-2014	Total no of NME-ICT e-content (till Jan, 14)
437	1414	2375	2435	179	6836

Phase – II – Total 20590 modules for 58 UG subjects are to be produced

As detailed above CEC is incurring Rs. 31,500/- expenditure for production of one module at present in Phase-I. It may be mentioned here that NPTEL spends Rs.29,000/- per module . Under Phase-II, CEC will be producing 10000 modules in year 2014-15 and 10590 modules in year 2015-16. The per module cost will be Rs. 34,000/- per module.. Therefore, the actual increase is Rs. 34,000 - Rs.31,500 = Rs.2,500 per module..

Additional money required for CEC is for various additional elements of four quadrants template of CEC e-content such as

- A. Quality production:-
 - Maintaining highest Audio/Video quality.
 - Production of e-content in complete 4 Quadrants.
 - Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules.
 - Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
- B. Rigorous Quality control :-
 - E-content certification and validation in two stages.
 - Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter.
 - Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.
- C. Web enabled :-
 - Meta tagging
 - Uploading on web portals

Control Number:- DE-19111011541
Submission Date:- 11/22/2010 2:35:52 PM

PART-I Personal Details

1. Name :-	Prof. Rajbir Singh
2. Designation :-	Director
3. Organisation Name :-	Consortium for Educational Communication
4. Postal Address :-	CEC, IUAC Campus, Aruna Asif Ali Marg, New Delhi - 110067
5. City :-	New Delhi
6. State :-	Delhi
7. Phone :-	011 26896637, 011- 64673905, 011- 65645236
8. Fax :-	011 26897416
9. Email :-	director.cec@nic.in
10. Mobile :-	9871413322
11. Project Category :-	E-Content Development

PART-II Information relating to Department/Institute

1. Name of Institute with complete address :	Consortium for Educational Communication, IUAC Campus, Aruna Asaf Ali Marg, New Delhi-110 067
2. Title of the Research Project	Production of Courseware e-Content Development
3. Department/ Broad Area	Hardware, Software & Multimedia
4. Major areas of research in the Department	Engaged in Education through ICT for the past 25 years.
5. Names & Designation of Principle Researchers in the major areas and list of publications during last 5 years based on work done in the Department:	
Name of Principal Investigator : Prof. Rajbir Singh, Director Co-Principal Investigators : Dr. Sunil Mehru JD(SW), Mr. Nageshwar Nath ME, & Directors of Twenty Two Media Centres	
6. Is it Inter-disciplinary Project?	Yes
7. Is it Inter-Institutional Project?	Yes
8. Is any Industry/User agency participating?	Yes
9. Brief of completed and or ongoing research projects supported by MHRD/ AICTE in the Department during last 5 years.	
Running of 24 hrs. Vyas Higher Education Channel since Jan.'04 Approved by MHRD. Production of Video progs., & Broadcast on Doordarshan since 1984. Programmes Broadcast on DD-Bharti, Gyan Darshan, Virtual Classroom Operations through EduSat, Development of e-modules for Internet Based Learning.	

PART-III Information relating to Department/Institute

10(a). Principal Investigator Details

PRINCIPAL INVESTIGATOR

- a. **Name** : Prof. Rajbir Singh
- b. **Designation** : Director, CEC
- c. **Age** : 49

d. Educational Qualification : Prof. (Dr.) Rajbir Singh, a double graduate in Law and Science, holds two masters degrees- one in English and another in Mass Communication. He is a doctorate in the area of Educational Communication ("Role of Mass Media in Educating Rural Masses") and has authored a book titled 'Development Communication: Mass Media and Public Policy' and more than a dozen research papers published in reputed National and International journals.

e. Areas of specialization: Public relation and advertising, developmental communication and social marketing, media laws and communication research.

f. Experience (Teaching & Research) : More than 22 years Teaching/Training/Research and Professional Experience in Mass Communication.

g. Selected list of papers published : The Institution (CEC) the PI is heading presently, has produced 20,000 video programmes about 6,661 e-content modules and 1500 LoRs by CEC and its media Centres till date. Perhaps, the largest collection of Educational Video Programmes.

10(b). Co-Principal Investigator Details

10B. Co-PRINCIPAL INVESTIGATORS

1. a. Name : Dr. Sunil Mehru
b. Designation : JD(SW), CEC
c. Age : 45
d. Educational Qualification : Ph.D
e, f, g, same as 10A & g
2. a. Name : Nageshwar Nath
b. Designation : ME, CEC
c. Age : 52
d. Educational Qualification : B.E. (Electrical), MBA, PGDCA
e, f, g, same as 10A & g
3. a. Director's of 22 Media Centres as per Annexure-I

11. In case it is a joint project with other Institution research labs and industries, :

a) Directors of 22 Media Centres - participating investigators name(s) of (EMMRC Ahmedabad, Chennai, Calicut, Kolkata, Pune, ELFU-Hyderabad, Osmania Hyderabad, Jodhpur, Madurai, JMI Delhi, Manipur, Indore, Mysore, Patiala, Roorkee, Srinagar, Sagar, Bodhgaya, Dibrugarh, Lucknow, Bhubneshwar & Pondicherry) Details attached

b) Large number of academicians, subject expert (in-service, retired) from various universities, colleges and institutions across the country and names of such experts, if any, provided by MHRD will be engaged in development of Educational Content.

c) A large no. of production agencies engaged in production of e-content and educational material across the country will also be engaged in production of e-content programmes.

11. In case it is a joint project with other Institution, research labs and industries, names(s) of participating investigators

In case it is a joint project with other Institution : a) Directors of 22 Media Centres research labs and industries, name(s) of participating investigators. (EMMRC Ahmedabad, Chennai, Calicut, Kolkata, Pune, ELFU-Hyderabad, Osmania Hyderabad Jodhpur, Madurai, JMI Delhi, Manipur, Indore, Mysore, Patiala, Roorkee, Srinagar, Sagar, Bodhgaya, Dibrugarh, Lucknow, Bhubneshwar & Pondicherry) Details *attached*

: b) Large number of academicians, subject expert (in-service, retired) from

	various universities, colleges and institutions across the country and names of such experts, if any, provided by MHRD will be engaged in development of Educational Content.
	: c) a large no. of production agencies engaged in production of e-content and educational material across the country, will also be engaged in production of e-content programmes.
12. In case industry/user agency is participating, whether a MOU has been signed or letter of intent given.	
In case industry/user agency is whether a MOU has been signed or letter of intent given.	: Yes, Tripartite MoU have been signed by the Secy., UGC, Director, CEC & the Vice - Chancellor of the 22 Host University where the Media Centres, created by the UGC, are located.
13(a). Present commitments of the Principal Investigators	
(a) Teaching	: YES
(b) Ph.Ds registered under him/her	: 12
(c) Sponsored research	: Not Applicable
(d) Consultancy	: e-Education
13(b). Present commitments of the Co-Principal Investigators	
(a) Teaching	: Industry Professional
(b) Ph.Ds registered under him/her	: Not Applicable
(c) Sponsored research	: Not Applicable
(d) Consultancy	: e-Education
14. Other members of the Research Group to work on proposed Projects:	
14. Other members of the Research Group to work on proposed Projects:	
Name and Designation	: Dr. Sunil Mehru, Jt. Director (SW), CEC : Shri Nageshwar Nath, ME : Smt. Rita Dhar, Producer : Smt. Ritu Chawla, CPA : 22 Directors of EMMRCs
Area of Specialization	: Broadcasting, Audio/ Video Content Production, e-content Production, Satellite Broadcasting, Terrestrial, IP Radio, Cable, DTH, etc. content Dissemination.
Experience (Teaching)	: Management, Production, Engineering, etc. ranging from 36 years to 12 years.
Papers Published	: Produced large number of Educational Television Programmes, e-content & LORs, Published Research Papers and Books.
PART-IV About Research Project	
15(a). Summary of the project (brief):	
Innovation in teaching and learning through the use of ICT, for mass education. The specific areas are creation of courseware e-content, for undergraduate & Post Graduate subjects.	
(b) Justification, importance of projects:	

CEC and Media Centres have vast experience and expertise in producing e-content modules. They have experience of 25 years in producing video programmes. CEC and its 22 Media Centres are already engaged in producing e-content, video based programmes and LoR's.

(c) Details of the work already done by Principal Investigator in this area:

Production of 20,000 video programmes, about 6,661 e-content modules and 1500 LoRs produced by CEC and its media centres till date.

16. Total amount required:

Phase I-Total 10295 modules for 29 subjects @ 355 modules per subject @ Rs. 17,500/- per modules

- | | |
|---|----------------------|
| 1. Expenditure for e-content modules Rs. 10295 X 17,500/- | = Rs. 18,01,62,500/- |
| 2. Workshops/training 10 nos. @ Rs. 2,00,000/- per workshop | = Rs. 20,00,000/- |

Total for Phase – I = Rs. 18,21,62,500/-

Phase II - CEC and Media Centres have been finding it very difficult to produce quality e-content in the given budget of Rs. 17,500/- in the Phase – I.

It would not be possible producing e-content under Phase – II in the same budget which has been communicated to NME-ICT, MHRD many times.

CEC vide letter No. : CEC/SW/NME-ICT/2011/15509 dated 2nd December, 2011 to the Secretary MHRD, New Delhi requested to increase the amount for e-content module from Rs. 17,500/- to Rs. 35,000/-.

Apart from cost escalation with time, the other reasons for increase in the development cost of e-content module is due to the following unique parameters of CEC e-content modules -

- A. Quality production:-
- Maintaining highest Audio/Video quality.
 - Production of e-content in complete 4 Quadrants.
 - Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules.
 - Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.
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- E-content certification and validation in two stages.
 - Rigorous quality control during production of e-content development at Media Centre, expert preview and incorporating corrections in the e-content thereafter.
 - Secondary stage preview at CEC, suggestion for correction in modifications and accepting only the certified e-content modules.
- C. Web enabled :-
- Meta tagging
 - Uploading on web portals

A realistic budget based on actual expenditure per e-content module has been worked out based on past experience, a detail of which is attached. The budget projection under phase – II has been made on the basis of Rs. 34,000/- per module.

S.	Description	Amount	Reference rates
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No.			
1	Subject Co-ordinator	Rs. 1000/-	As per e-content DPR
2	Subject expert/ Resource person a. For Research (Background work for reference material field visits etc.) b. For providing objectives, summary, Downloadable (pdf) text, Transcript , case studies, FAQ`s, Assignments, Quiz, tutorial References, Glossary, Web References etc. c. Onscreen presentation by the subject expert	Rs. 2000/- Rs. 4500/- Rs. 2000/-	Rs. 2000 - 5000/- * Rs. 2000 - 8000/- * Rs. 1000 - 2000/- *
3.	For production of ETV programme/Video modules a. Hiring /purchase of Equipment, facilities. b. Hiring/engagement of Human resources on contract basis as permissible under project for timely and successful completion of the project. c. Preproduction, Studio Recording, Music composition, Post production etc. (Presently borne by Debit to UGC grants)	Rs. 5000/- Rs. 5000/-	As per UGC funding for production of ETV programme.
5	Freelance/hired Editors payment per e-content/ ETV programme for 4 shifts @ Rs.1000/- per shift (Presently borne by Debit to UGC grants)	Rs. 4000/-	Rs. 500 – 1000/- * Per shift
5	Freelance/hired Graphics artist per e-content for 4 shifts @ Rs.1000/- per shift	Rs. 4000/-	Rs. 1500 – 2000/- * Per shift
6	Honorarium to PI, Co-PI and staff as permissible under project for timely and successful completion of the project as permissible under project.	Rs. 1500/-	Approx. 5% of Module cost
7	E-content certification and validation (Presently borne by Debit to UGC grants) (a) 1 st stage at Media Centres by subject experts and production team (b) 2 nd stage at CEC by Peer group	 Rs. 1000/- Rs. 1000/-	The Honorarium being paid to experts for preview of programmes at CEC and Media Centres Rs. 1000/- Rs. 1000/-
	Sub Total	Rs. 31,000/-	
8.	Contingency including transport, consumables, Integration activities, PRSG meeting, dissemination and outreach activities etc.	Rs. 3000/-	Approx. 10% of the Module cost
	Total 8+9	Rs. 34,000/-	

Total 20595 modules for 58 subjects @ 355 modules per subject @ Rs. 34,000/- per modules
1. Expenditure for e-content modules Rs. 20590 X 34,000/- = Rs. 70,00,60,000/-
2. Workshops/training 58 subjects @ Rs. 2,00,000/- per subject = Rs. 1,16,00,000/-

Total for Phase – II = Rs. 71,16,60,000/-

Grand Total for Phase I & II = Rs. 89,38,22,500/-

17(a) Recurring budget (not more than 30%) of the proposal along with item-wise breakup (Man power, Contingency, Consumable, Travel, Miscellaneous year wise breakup).

S. No.	Item	Amount per year	Duration (From	Duration (From date	Total Amount
--------	------	-----------------	----------------	---------------------	--------------

		(Rs. in Lakhs)	date of Revision)	of Revision)	(Rs. in Lakhs)
		Phase- I		Phase –II	
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years	3334.80
A. (ii)	Contingency, travel Aprox. 10%	133.625	1 Year	2 Years	711.60
	Sub Total A	933.625			4046.40
B. (i)	Recurring Expenses on account of engagement of Human Resource, material etc.	150.00	1 Year	2 Years	569.30
B. (ii)	Preview at Media Centre and CEC	78.00	1 Year	2 Years	426.45
	Sub Total B	228.00			995.75
C. (i)	ETV programme Production including Pre-Production, Recording, Music composition, Post Production,	350	1 Year	2 Years	1155.80
C (ii)	Honorarium to PI, CO-PI and staff	90	1 Year	2 Years	422.65
	Sub Total C	460.00			1578.45
	TOTAL A + B + C	1601.625			6620.60

(b) Detailed breakup of non-recurring items (with the equipment to be procured along with cost).

S. No.	Item	Amount (lacs) Phase – I	Amount Phase - II
D	Purchase/hiring/engaging the services/equipment/software's, not available at CEC and Media Centres	200.00	380.00
E	Academic, Production, Technical and Research workshops/training numbering 10 and 58 in Phase I & II respectively.	20.00	116.00
	Total A + B + C + D +E	1821.625	7116.60

- Note : 1. Building construction is not permitted.
- 2. The payment to subject coordinator shall be @ Rs. 1,000/- per module subject to maximum payment of Rs. 3,00,000/- per course.
- 3. Out of total project cost 10% shall be retained by Consortium for Educational Communication for incurring expenditure towards hiring/purchase of equipment and hiring of manpower and Integration, Coordination, PRSG Meetings, Meta tagging, dissemination, outreach to the students as allowed under Para – 7(iii) of the guidelines issued by MHRD for e-content development and Para – 20 E of the e-content development proposal submitted by CEC to MHRD.
- 4. The above by bifurcation is indicative only. Re-appropriation of funds from one expenditure head to another can be made by PI or Co-PI for timely completion of the project.

18. SUMMARY SHEET :	
	NA
1. Name of the Institution:	Consortium For Educational Communication
2. Title of the Project:	Production of Courseware e-Content Development, Video Programmes
3. Name of the Department:	CEC and EMMRCs
4. Cost of the Project:	
	Rs. 89,38,22,500/-
5. Amount released earlier if any:	
	Rs.11.50 Crores
6. Utilization position in respect of grants released earlier (upto-2013) for various projects (Details to have given project wise)	
	(i) Fully spent :Funds received under Phase – I - fully spent (UC Attached).
	(ii) Unspent, proposal to utilize it :NIL
7. Reasons for unspent balance	
	There have been over spending then the earlier released funds
8. Name of the Principal Investigator responsible for implementation of the Project:	
	Prof. Rajbir Singh
PART-V Detail Project Report	
1. Objective	
	The objectives of the proposed programme are to: (a) Promote generation of e-Content in all subjects; (b) Develop teachers' and experts' resources in e-Content creation; (c) Make available the e-Content to teachers and students through various delivery modes for formal and non-formal education, for supplementing and complementing the process of teaching and learning in higher education; (d) Develop partnerships between educational institutions and the IT industry for the continuous development of new content and methodology taking into account contemporary technology.
2. Methodology	
	The syllabus proposed for creation of e-Content shall be as per UGC Model Curricula for Undergraduate level courses. However, the Course Coordinator in consultation with the Subject Experts is expected to incorporate the latest developments that have taken place in that particular subject. This intention here is to provide scope for value added information on the subject.
3. Deliverables year wise and its possible contribution to major objectives of mission.	
	The following content shall be delivered in two phases. In Phase I, production of e-content courseware for 29 subjects shall be produced and under Phase II, production of e-content courseware for additional 58 subjects shall be undertaken. 1. Production of e-Content Modules suitable for use in PC and internet. 2. To hold Academic, Production, Technical and Research workshops for successful development, upgradation and evaluation of the objectives of the project.

4. Time schedule (year wise)

Progress & Expected e-content Production (using Four Quadrant Approach) by CEC & its Media Centre under NME-ICT MHRD Project.

4.1 Subjects under Phase-I

**Production of e-content courseware in 29 UG subjects under Phase – I
CEC has completed e-content in 08 subjects**

Sr. No.	Subject Allotted	Media Centres	E-content Developed
1.	B. A. History	Kolkata	356
2.	B.A. Botany	Srinagar	278
3.	B.A. / B.Sc. English Language	Hyderabad EFLU	120
4.	B.A. / B.Sc. Environmental Science	Indore	75
5.	B.A. Anthropology	Manipur	194
6.	B.A. (Hons.) Mathematics	Calicut	382
7.	B.A. / B. Sc. Hindi Language	Indore	144
8.	B.A. Vocational Studies (Photography)	Indore	28

Production of e-content courseware in remaining 21 UG subjects

Sr. No.	Subject Allotted	Media Centres	E-content Developed till Dec, 2013
9.	B.A. Economics	Hyderabad Osmania	202
10.	B.A. Communication & Journalism	MCRC Jamia	205
11.	B.Sc. Zoology	Ahmedabad	120
12.	B.Com Commerce	Jodhpur	697
13.	B. Sc. Computer Science	Chennai	301
14.	B.A. Geography	Mysore	204
15.	B.A. Performing Arts	Patiala	238
16.	B.A. (Hons.) English Literature	Hyderabad ELFU	290
17.	B.A. Hindi Literature	Indore	200
18.	B.A. Business Management	Pune	39
19.	B.Sc. Chemistry	Roorkee	105
20.	B.Sc. Geology	Sagar	78
21.	B.A. Sociology	Madurai	385
22.	B.Sc. Applied Physical Sciences (Electronics)	Chennai	82
23.	B.Sc. Applied Life Science (Sericulture)	Mysore	94
24.	B.A. Psychology	EFLU Hyderabad	189
25.	B.Sc. (Hons) Microbiology	Kolkata	73
26.	B.Sc. Agriculture (1 st Year)	Jodhpur	13
	B.Sc. Agriculture (2 nd Year)	Madurai	0
	B.Sc. Agriculture (3 rd Year)	Imphal	0
27.	B.Sc. Applied Physical Sciences (Computer Science)	Patiala	155
28.	B.Sc. (Hons) Statistics	Mysore	190
29.	B.Ed.	Calicut	143
TOTAL			3618

4.2 Subjects under Phase – II

Production of e-content courseware in 58 UG subjects under Phase – II

Sr. No	Subject Allotted	Media Centres
1.	B.A. (Hons) Urdu (1 st Year)	Srinagar
	B.A. (Hons) Urdu (2 nd Year)	EFLU Hyderabad
	B.A. (Hons) Urdu (3 rd Year)	MCRC, Jamia
2.	B.A. (Hons) Music (Ravindra Sangeet)	Kolkata
3.	B.A. (Hons) Political Science	Kolkata
4.	B.A. (Hons) Hindi Journalism	MCRC, Jamia
5.	B.A. (Hons) Philosophy	Calicut
6.	B.A. (Hons) Business Economics	Ahmedabad
7.	B.A. (Hons) Sanskrit (1 st Year)	Ahmedabad
	B.A. (Hons) Sanskrit (2 nd Year)	Roorkee
	B.A. (Hons) Sanskrit (3 rd & 4 th Year)	Chennai
8.	B.A. (Hons) Music (Karnataki Sangeet)	Madurai
9.	B.A. (Hons) Music (Hindustani Classical)	Pune
10.	B.A. (Hons) Social Work	Hyderabad Osmania
11.	B.A. Vocational Studies (Book Publishing)	Kolkata
12.	B.A. Management & Marketing of Insurance (1 st & 2 nd Year)	Jodhpur
	B.A. Management & Marketing of Insurance (3 rd Year)	Hyderabad Osmania
13.	B. A. (Foreign Language) French & Spanish	EFLU Hyderabad
14.	B.A. Fine Arts	MCRC Jamia
15.	B.A. in Film Studies	Kolkata
16.	B. A. Vocational Studies (Advertisement)	Indore
17.	B. A. Vocational Studies (Accounts)	Indore
18.	B. A. Vocational Studies (Office Audit)	Indore
19.	B. A. Vocational Studies (Computer)	Indore
20.	B.A. Human Rights	Imphal
21.	B.A. Tourism	Mysore
22.	B. A. Human Resources Management	Pune
23.	B.A. Social Welfare Administration	Madurai
24.	B. A. Vocational Studies	Mysore
25.	B. A. Marketing Management & Retail Business	Jodhpur
26.	B.A. Office Administration & Secretarial Practice	Pune
27.	B.A. Public Administration	Hyderabad Osmania
28.	B.A. LLB (1 st & 2 nd Year)	Srinagar
	B.A. LLB (3 rd , 4 th & 5 th Year)	EFLU Hyderabad (Bhubaneswar)
29.	B. A. Vocational Studies - Mass Communication Video Production	Kolkata
30.	B. A. Population Studies	Patiala
31.	B. A. Education	Srinagar
32.	B.Sc. (Hons) Food Technology (1 st Year)	Srinagar
	B.Sc. (Hons) Food Technology (2 nd & 3 rd Year)	Mysore
33.	B.Sc. Life Sciences (1 st Year)	Ahmedabad
	B.Sc. Life Sciences (2 nd Year)	MCRC, Jamia
	B.Sc. Life Sciences – 3 rd Yr.	Imphal
34.	B.Sc. Analytical Methods in Chem & Bio-Chem	EFLU Hyderabad
35.	B.Sc. (Hons) Home Science	EFLU Hyderabad
36.	B.Sc. (Hons.) Bio-Medical Sciences	EFLU Hyderabad
37.	B.Sc. (Hons) Electronics	Jodhpur
38.	B.Sc. (Gen) Mathematical Science	Chennai

39.	B.Sc. (Hons) Polymer Science	Chennai
40.	B.Sc. Physics (Hons.)	Chennai
41.	B.Sc. Agro-Chemical and Pest Control	Mysore
42.	B. Sc Bio-Informatics	Calicut
43.	B.Sc. Applied Physical Sciences (Environmental Science)	Chennai
44.	B.Sc. Applied Physical Sciences (Industrial Chemistry)	Roorkee
45.	B.Sc. (Hons) Bio-Chemistry – 1 st Yr.	Hyderabad Osmania
	B.Sc. (Hons) Bio-Chemistry – 2 nd & 3 rd Yr.	Madurai
46.	B.Sc. Physical Sciences	Hyderabad Osmania
47.	B. Arch.	Chennai
48.	B.Ed. (Special Education for Visually Impaired	Madurai
49.	B.Ed (English)	EFLU, Hyderabad
50.	B.El.Ed. (Elementary Education)	Madurai
51.	B.Lib.Sc.	Calicut
52.	B.P.Ed. (1 st & 2 nd Year)	Patiala
	B.P.Ed. (3 rd Year)	Imphal
53.	B. Pharmacy	Sagar
54.	BFA Painting Applied Art Sculpture / Epigraphy	Calicut
55.	BFA Painting Applied Multimedia	Calicut
56.	Bachelor for Theatre Arts	Calicut
57.	Bachelor of Business Studies	MCRC, Jamia
58.	Criminology & Forensic Science	Sagar
TOTAL		

5.Details of permanent assets to be procured from the project with estimated cost.

Equipment list for Media Centres

S.N	Equipment	Qty.	Estimated Cost in Rs (Lakhs)
1. 1	Broadcast Grade cameras with Tripode	2	15
1. 2	Vision Mixer with Multi-viewer o/p	1	7
1. 3	Audio Mixer	1	1.5
1. 4	42" LCD Multi-viewer (HDMI ports)	1	0.90
1. 5	Wireless & Lapel Microphones	5	2
1. 6	HDD Recorder/Server	1	3
1. 8	Scan converter VGA, HDMI-PAL	1	1
1. 9	Animation/Graphic Workstation with Software	1	4
1. 11	PC/Laptop	3	2
1. 10	A-V NLE editing set up	1	5
1. 11	Workstation for Integration into Flash template	1	3

1. 12	8 Port LAN Sw	2	0.25
1. 16	Amplispeaker & Head Phones	2	0.5
1. 18	Cool Studio Lights & Fixtures	1 set	3
1. 19	UPS/Inverter 5KW	1	1
1. 22	DTH Reception and 40" LCD TV	1	0.35
1. 25	Air conditioners	3	2
1. 20	Acoustic Treatment for Studio and Control Room	1 set	3
1.	Civil and Electrical modifications/renovations , Earthing Modification Jobs	1	2.5
1. 21	Racks, Installation Kit, Intercom, Cables & Consumables	1 set	3
Items to be provided by Institute			
1. 23	Control Room/ equipment room size 12X15x10ft (wxlh) or better, to be provided by the institute.	1	
1. 24	Studio Size 20X35X12 ft., to be provided by the institute	1	
1.	Tel Land lines (2) & Broadband Internet (2)	1 Set	
1.	Fire detector, alarm, extinguishers.	1 set	
	TOTAL		60.00

6. Details of financial outlay in year wise for recurring and non-recurring funds.

S. No.	Item	Amount per year (Rs. in Lakhs)	Duration (From date of Revision)	Duration		Total Amount (Rs. in Lakhs)
				(From date of Revision)	(From date of Revision)	
		Phase- I		Phase -II		
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years		3334.80
A. (ii)	Contingency, travel Aprox. 10%	133.625	1 Year	2 Years		711.60
	Sub Total A	933.625				4046.40
B. (i)	Recurring Expenses on account of engagement of Human Resource, material etc.	150.00	1 Year	2 Years		569.30
B. (ii)	Preview at Media Centre and CEC	78.00	1 Year	2 Years		426.45
	Sub Total B	228.00				995.75
C. (i)	ETV programme Production including pre-production, property, regarding, Music composition, post production,	350	1 Year	2 Years		1155.80

C (ii)	Honorarium to PI, CO-PI and staff	90	1 Year	2 Years	422.65	
	Sub Total C	460.00			1578.45	
	TOTAL A + B + C	1601.625			6620.60	

7. Management of Deliverables & IPR etc.

The Project Coordination and Progress Review Committee constituted by the Director, CEC, comprising of a panel of subject experts, technical experts, media professionals, managers including officials from the CEC to monitor and review the progress of implementation of the e-content scheme. The Director, CEC or his/her nominee shall be the Member Secretary of the Committee.

8. Justification of the projection with clear cut statement about outcomes if the project contributing to mission objective.

The project will deliver complete e-content courseware for 87 subjects. The e-content, once developed, will form an integral part of "National Mission on Education through ICT" and will also be available at Consortium for Educational Communication (CEC) and MHRD designated Website/Servers. The content will be freely accessible by all teachers and students of the Indian University system throughout the country.

PART-VI Uploaded CV and DPR

Uploaded CV :- [Click here to CV](#)

Uploaded DPR :- [Click here to DPR](#)

Part-VII DPR Summary

1. Objective

The objectives of the proposed programme are to:

1. Promote generation of e-Content in all subjects;
2. Develop teachers' and experts' resources in e-Content creation;
3. Make available the e-Content to teachers and students through various delivery modes for formal and non-formal education, for supplementing and complementing the process of teaching and learning in higher education;

Develop partnerships between educational institutions and the IT industry for the continuous development of new content and methodology taking into account contemporary technology

2. Deliverables (Please give milestones with timelines linking with payments)

The following content shall be delivered in two phases. In Phase I, production of e-content courseware for 29 subjects shall be produced and under Phase II, production of e-content courseware for additional 58 subjects shall be undertaken.

1. Production of e-Content Modules suitable for use in PC and internet.
2. To hold Academic, Production, Technical and Research workshops for successful development, upgradation and evaluation of the objectives of the project.

3. Suggestions with respect to:

- **Arrangement for quality control :-**
 - i) **Arrangement for quality control**

The content validity shall be ensured by the Production Agency and the CEC. Beside content validity, the production and technical quality control shall be ensured by the CEC.

The final products in the form of e-Content modules shall finally be previewed and approved before making it available to the public

- **Accuracy :-**

ii) Accuracy

The accuracy of the content being developed will be given highest priority during the development of the e-content. Levels of testing will be put in place to ensure utmost accuracy in the content

- **Coverage :-**

iii) Coverage

- The project is expected to fulfill the needs of those students who are unable to learn through regular stream of education.
- The course materials will be of much use to the self-employed persons who prepare for civil service and competitive examinations.
- The project will be a pioneering approach towards the setting up of CEC virtual university.

- **Updation mechanism :-**

As and when there are changes in the curriculum, the same would be translated into the e-courses as well. Also, based on the constant feedback and testing, the necessary updation would also be incorporated. For any Updation a separate proposal including the budget required shall be submitted

- **Testing by users :-**

Formative and Summative Researches shall be carried out regularly in order to test the knowledge, understanding, aptitude and application level of the learners

- **Testing by peer group :-**

The support of senior academicians, technologists and Media Managers shall be sought in order to test the content developed in terms of its academic, production and technical quality. For this, an Academic Standing Committee has been constituted, which includes officers from CEC, Academicians, Technical and Production Experts.

4. Scaling up

- **Plan :-**

Once the Development of e-content under Phase-I, picks up, the CEC shall implement the development of e-content under Phase-II, wherein additional 58 subjects shall be undertaken by outsourcing the production of e-content.

- **Strategy**

Phase – I

In-house :-All the content under phase – I for 29 subjects shall be prepared in-house and also be checked for accuracy and thereafter it would be suitably digitized to be put on Servers for access by students and general public, on the CEC and Shakshat Internet Clouds.

Phase – II

Out sourcing :-All the e-content development under Phase-II i.e. for 58 subjects shall be outsources. Production/development of e-content under Phase-II shall be outsourced.

5. Popularizing and extension activities and plans

- **Strategy for popularization :-**

Various activities, events etc shall be organized to popularize and promote the project with the help of university and associated colleges

- **Extension activities and plans**

Maintenance mechanism :-

Maintenance of the content would also be done on a regular basis

User feedback mechanism, its execution procedure and corrective measures. :-

Feedback would be constantly collected and a plan would be structured to make the necessary changes/modifications to better suit the end user. All corrective measures would immediately be put into action. This would constantly help us in improving the quality and efficiency of our e-content.

6. Review Mechanism

- **Frequency of review :-**

Academic Standing Committee shall meet once in three months, however academic, production and technical review shall be done on regular basis.

- **List at least 10 Reviewers, who are eminent in fields of the projects :-**

1. Prof. Suranjan Das, Vice Chancellor, University of Kolkata
2. Lt. Gen Dr. D. D. S. Sandhu, Vice Chancellor, Kurukshetra University
3. Prof. Sunaina Singh, Vice Chancellor, Osmania Hyderabad
4. Prof. Ranbir Singh, National Law University, Delhi
5. Prof. Ajit K. Kembhavi, Director, IUACAA, Pune University, Pune
6. Prof. Anup Beniwal, Vice Chancellor, IP University, New Delhi
7. Prof. B. K. Kuthiala, Vice Chancellor, Makhanlal Chaturvedi Rastriya Patrakarita Evam Sanchar Vishwavidyalaya, Bhopal
8. Prof. Rajan Harshe, South Asian University, Delhi
9. Prof. Ravi Shanker, IIFT, Delhi
10. Prof. R. C. Kuhad (DUSC), University of Delhi
11. Prof. Arun Kumar Grover, Vice Chancellor, Panjab University
12. Dr. Talat Ahmad, Vice Chancellor, Srinagar
13. Prof. M. C. Sharma, Professor, SOE, IGNOU, New Delhi
14. Mr. Pradeep Verma, Sr. Consultant, NME-ICT, Delhi
15. Dr. Sandeep Chopra, Sr. Scientist, IUAC New Delhi
16. Prof. K. Mangal Sunder, IIT Madras
17. Prof. A. D. N. Bajpai, Vice Chancellor, H. P. University, Shimla
18. Prof. S. K. Sopory, Vice Chancellor, JNU, New Delhi
19. Prof. Dinesh Singh, Vice Chancellor, Delhi University, Delhi
20. Prof. Uma Kanjila, Director, ACIIL IGNOU, New Delhi

7. Budget.

- **Capital Expenditure**

Details to be captured item-wise :-

Shall be put on the CEC website as and when applicable

Focused comments on high cost equipment (More than Rs. 10 lakhs worth of items) (Specifications, reasonability of estimated cost) :-

(More than Rs. 10 lakhs worth of items) (Specifications, reasonability of estimated cost) Not applicable.

- **Revenue Expenditure**

Details to be captured item-wise :-

Shall be put on the CEC website as and when applicable.

Focused comments on :-

total honorarium to be paid in the project:-

S. No.	Item	Amount per year (Rs. in Lakhs)	Duration (From date of Revision)	Duration (From date of Revision)	Total Amount (Rs. in Lakhs)
		Phase- I		Phase –II	
A. (i)	Development of Academic Content for e-learning	800.00	1Year	2 Years	3334.80
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	Sub Total C	460.00			1578.45
	TOTAL A + B + C	1601.625			6620.60

Project Investigator (PI), Co-project Investigator (CO-PI), Media Centre and CEC Staff associated with the development of e-content etc., who work on the project, during time other than office hours and on holidays, would be entitled for incentives in form of consultancy fees/overtime allowance/honorarium, etc. The consultancy fees/honorarium may be paid to regular faculty/staff of Media Centre as is being paid to the faculty members of IIT's, IIM's, etc. on taking similar assignments.

- **Please indicate the Anchor Institution for disbursement of funds :-**
Director, Consortium for Educational Communication

8. Cost benefit analysis including cost effectiveness approach viz-a-viz other alternatives

The produced e-content will be disseminated through various ICT modes to reach the learners across the country. It is felt that to increase the literacy of the masses in India, the cost of production of educational content electronically and making it to reach to the masses, shall be fractional to the cost of holding contact class or performing traditional teaching learning, to the same number of learners. The development of e-Contents shall help UGC and MHRD to address the issue of equity and access without compromising the quality.

9. Social Impact :-

The rural-urban and gender bias in higher learning can be overcome by the utilization of e-learning materials by the institutions situated in rural areas.

10. Outcome - Extent to which the project will realize the objectives of the Mission may be given explicitly :-

The Mission Statements “identifying Delivery Models with reference to Learner-Centric Goals” and also “Using generic content and creating methodology for any target, any audience and incorporating evaluation and assessment based alternative for multi-learning modes with multimedia support” shall be focused on and the project would ensure that the objectives based on the Mission Statement are realized.

VIDWAN: An Expert Database and National Researcher's Network

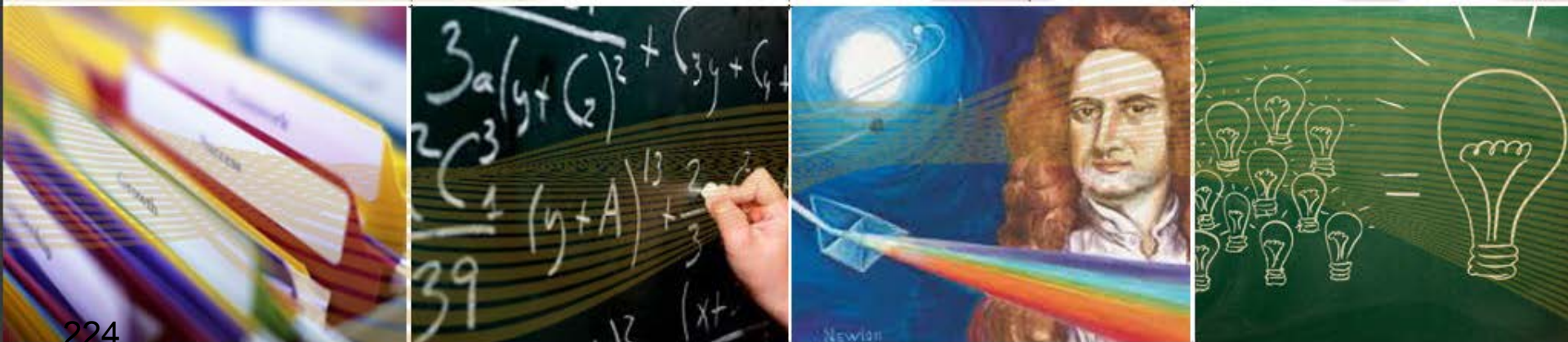
Control No: KOT1411201313071

PI : Mr Kannan P, Scientist C (LS)

CO-PI : Mr Yatrik Patel, Scientist D (CS)

Mr Abhishek Kumar, Scientist C (CS)

INFLIBNET Centre, Gandhinagar

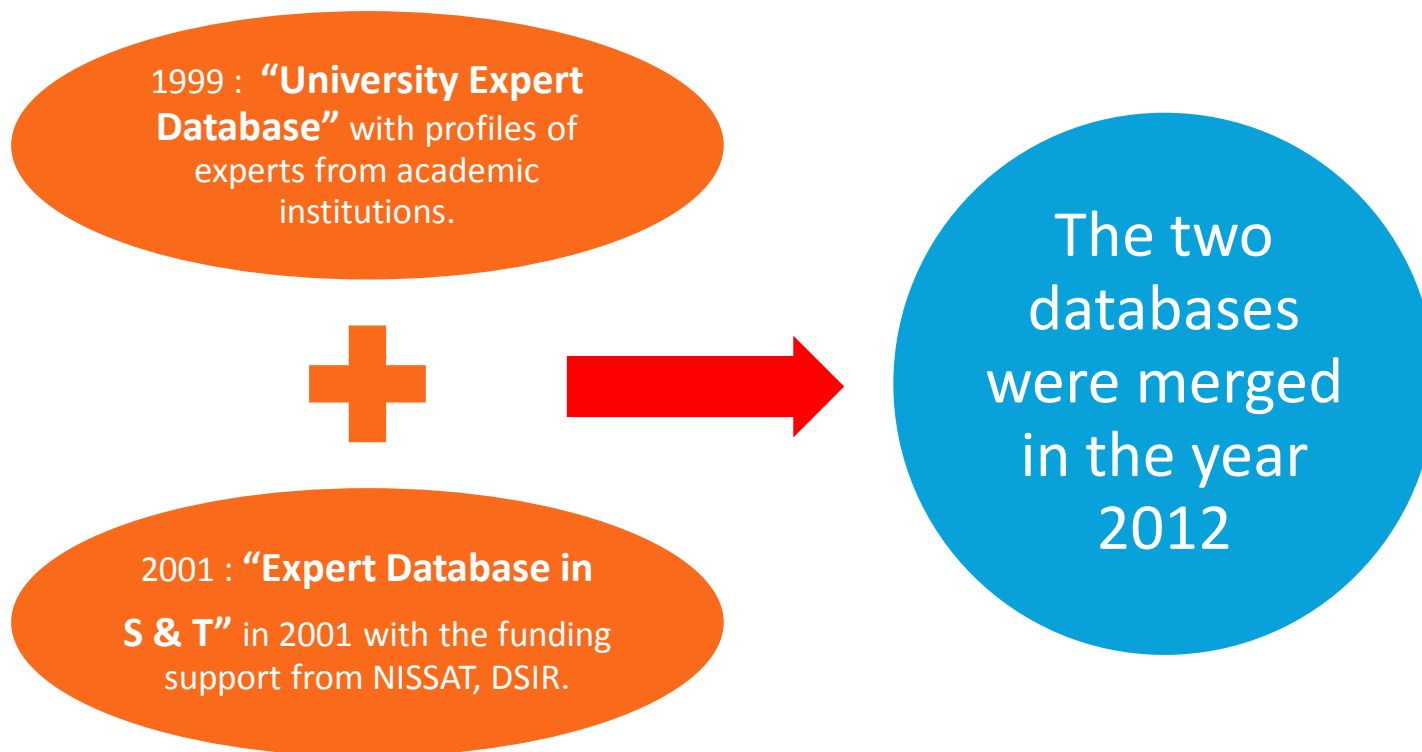


Overview

- **Background**
- **VIDWAN: Expert Database & National Researcher's Network**
- **Features and Functionalities**
- **Methodology**
- **Proposed Financial Estimation**



Background Information (Expert Database)



Other “Expert Database” Initiatives

NIC’s Expert Database

- Categorized by major subject categories
- Unstructured data mostly personal attributes.
- Interactive features are not there

UGC’s Professors Database

- Restricted to professors in universities under purview of UGC
- Attributes Mostly personal and area of expertise.
- No provision to capture publication details

National level Academy

- Consists of experts in specific group
 - Science
 - INSA, NAS, IAS
 - Engineering
 - INAE
 - Medical sciences
 - NAMS
 - Veterinary Sciences
 - NAVS
- No provision to hyper link to external source & dynamic data capture



VIDWAN: Expert Database and National Researcher's Network

It is the proposed Semantic Web-based ontology-driven database of profiles of scientists, researchers and other faculty members working in academic institution , R & D organizations involved in teaching and research in India and also Indian origin working at abroad.

It enables networking and collaboration via information sharing about researchers and their activities.



Stakeholders of Vidwan

- Find potential scholars with similar expertise
- Publicity of expertise to larger research community
- Linking to other databases and other resources

Expert / Scholar / Researcher



- Find experts in a given research area / geographic area
- Improve faculty collaboration across organisations in India as well as other country
- Identify institutional strength in a given subject area

Institutions



- Identify experts for committees and expert panels
- Identify funding opportunity and associated experts
- Identify areas of intensive research activity

Funding Agencies / Policy Makers



Attributes of Experts Profiles @ Vidwan

Dr. Sanyasiraju Yedida V.S.S.,
M Sc, M Phil, PhD
Indian Institute of Technology Madras
Status : Working

Expertise
Areas of expertise : Computat... Fluid Dyanmics
: Mathemat...

Personal details
Name
Address
Email
Contact no
Profile image and etc.

Qualifications
Degree
Subject
Institution
Qualifying year
And etc.

Experience
Designation
Affiliated Institute
Start year
End year and etc.

Expertise
Expertise
Brief information about the expertise

Publications
Journal articles
Conference papers
Chapters in books
Books etc.

Other Information
Project s
Professional Engagemen s
Honours / Awards etc.

Identity
ORCID ID
Researcher ID (WoS)
Scopus ID
Google Scholar ID

sanyasira... +6, 1st
Loop Road, IIT
Campus
Date of Birth : 1965-09-
City : Chennai
State : Tamil Nadu
Country : India
Pin : 600036
Gender : Male
Phone : 044-2578491,91 44 22576621(res)

Quantifiable Parameters

VIVO
FOAF
Geopolitical
SKOS
BIBO

Comparison of other database with proposed database “VIDWAN”

	Vidwan Expert Database & National Researcher's Network	UCG Professor Database	ENVIS Centre on Himalayan Ecology with NIC	National Academies
1				
47	Qualification Information			
48	Higher Qualification	✓	×	×
49	University / Institution	✓	×	×
50	Passing Year	✓	×	×
51	Specialisation / Subjects	✓	×	×
52				
53	Publication			
54	No of Journal Article	✓	×	×
55	No of Book	✓	×	×
56	No of Chapter in Book	✓	×	×
57	No of Conference Proceeding	✓	×	×
58	Information related to Title of Book / Journal / Patent / Technical report / Article published	✓	×	×
59	Information related to Honours and Awards / Project handled	✓	×	×
42	ORCID Id	✓	×	×
43	ISI Researcher Id	✓	×	×
44	SCOPUS Id	✓	×	×
45	Google Scholar Id	✓	×	×
22	Personal URL	✓	×	×
23	Search Tags	✓	×	×

FEATURES AND FUNCTIONALITIES

Features and Functionalities

✓ Advanced search by

- ✓ Name
- ✓ Area of expertise
- ✓ Designation
- ✓ Organisation and state

✓ Browse by

- ✓ Subject category
- ✓ Organisation category

✓ Research Network

- ✓ Co-other Network
- ✓ Map of Science Network

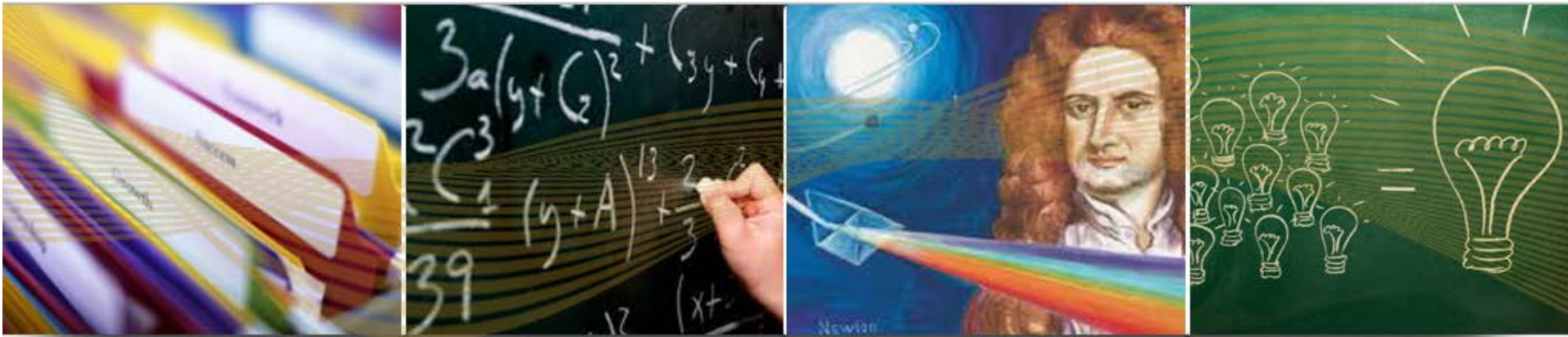
✓ Integrate and link with

- ✓ ORCID ID
- ✓ Google Scholar ID
- ✓ Researcher ID
- ✓ Scopus ID
- ✓ Ringgold ID

✓ Link to

- ✓ Shodhganga
- ✓ IndCat: Theses & Books
- ✓ Research Project Database

Proposed Interface : Advanced Search and Browse by Category



- Home
- Register as Expert
- Login
- Search
- Contact us

Advanced Search

Keyword

Keyword

Display records per page

Select ▼

or

or ▼

Select

Name

Designation

Area of Expertise

City

State

Organisation

Organisation Category

Advanced Search

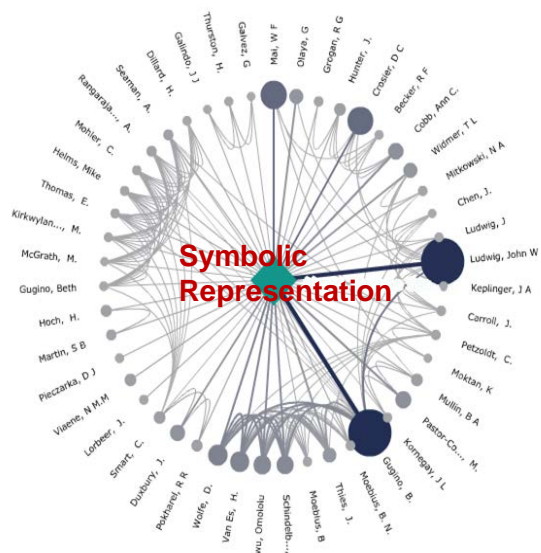
Browse by subject & organisation category

- BROWSE BY SUBJECT
- Agricultural Sciences (1945)
 - Biological Sciences (467)
 - Chemical Sciences (1002)
 - Physical Sciences (1328)
 - Medical & Health (1991)
 - Engineering & Tech (2635)
 - Social Science (1446)
 - Arts and Humanities (711)


- ORGANISATION CATEGORY
- Institutions of National Importance (1852)
 - Central University (1361)
 - State University (3243)
 - Deemed University (786)
 - R & D Organisation (2972)
 - Technical Institute (554)
 - Other Institute (974)



Prasad Mallampalli, Durga | Professor



Networks

 [Co-Authors](#)

 [Co-Investigators](#)

 [Map Of Science](#)



mdp@uohyd.ernet.in
title="email">mdp@uohyd.ernet.in

91 (40) 23134855

Refresh Sort alphabetically Save as image

Proposed semantic web interface for co-authors network & visualization





Prasad Mallampalli, Durga | Professor



mdpsc@uohyd.ernet.in
title="email">mdpsc@uohyd.ernet.in

91 (40) 23134855

Expert delivery (87 publications) across 554 scientific subdisciplines

554 Subdisciplines | 123 Discussions

Search:

1 - 12 of 554	Disc	Pub	Dist	Act
Subdisciplines	8 of 554	100%	100%	100%
Plant Sciences	58.2	91.1		
Insect Physiology	18.0	18.0		
Soil Microbiol	6.9	6.1		
Ecological Modelling	3.0	3.1		
Myology	3.0	3.1		
Soil Systems	2.9	3.1		
Entomology	2.8	2.1		
Biological Conservation	2.0	2.1		
Plant Management Science	2.0	2.1		
Horticulture	1.0	1.0		
Molecular Ecology	1.0	1.0		
Soil Quality	1.0	1.0		
Acoustics	0.0	0.0		

Save All on CSV



Networks

- [Co-Authors](#)
- [Co-Investigators](#)
- [Map Of Science](#)

Proposed semantic web interface for map of science network & visualization



Hyperlink to ORCID

The screenshot shows a web browser window with the URL <http://orcid.org/0000-0002-2653-0806>. The page features the ORCID logo and navigation tabs for 'FOR RESEARCHERS', 'FOR ORGANIZATIONS', 'ABOUT', 'HELP', and 'SIGN IN'. The profile for Ashutosh Sharma is displayed, including his name, a link to his profile, and a list of keywords such as 'Carbon composites', 'Chemical Engineering', and 'Nanotechnology'. A 'Personal Information' section is partially visible, and an 'Identity' section shows his ORCID ID (0000-0002-2653-0806) and Google Scholar ID (MmjJMIAAAAJ). A semi-transparent text box is overlaid on the right side of the page, containing three key points about ORCID.

Persistent digital identifier for every researcher (Aadhar for Researchers)


Automated linkages between researcher and research activity

Commenced in 2012, more than 3 lakh IDs

Hyperlink to Google Scholar

← → ↻ scholar.google.co.in/citations?user=MmjJMIIAAAJ ☆ [Icons] nalankannan@gmail.com

Web Images More...



Ashutosh Sharma

Chemical Engineering, IITK, IIT Kanpur, Indian Institute of Technology Kanpur
[nanotechnology](#) - [thin film](#) - [patterning](#) - [adhesion](#) - [wetting](#)
 Verified email at iitk.ac.in
[Homepage](#)



Search Authors

[My Citations](#) - [Help](#)

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3 Followers

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[Follow new citations](#)


Co-authors

Rajesh Khanna
 Kajari Kargupta Posting...
 Dipankar Bandopadhyay
 Vijay B. Shenoy
 Rabibrata Mukherjee
 Animangsu Ghatak
 Shizhi Qian
 Subir Bhattacharjee
 Chandra S Sharma
 Manish Kulkarni
 Marc Madou
 Abhijit Majumder
 Ankur Verma
 Hari Katepalli

Citation indices

	All	Since 2008
Citations	6889	3666
h-index	44	32
i10-index	139	115

Citations to my articles



Show: 20 ▾ 1-20 Next >

Title / Author	Cited by	Year
Pattern formation in unstable thin liquid films A Sharma, R Khanna Physical Review Letters 81 (16), 3463-3466	361	1998
Instability of thin polymer films on coated substrates: rupture, dewetting, and drop formation A Sharma, G Reiter Journal of colloid and interface science 178 (2), 383-399	293	1996
Relationship of thin film stability and morphology to macroscopic parameters of wetting in the apolar and polar systems	244	1999

Hyperlink to Research ID (Web of Science)

RESEARCHERID



[Home](#) [Login](#) [Search](#) [Interactive Map](#) [EndNote >](#)

Sharma, Ashutosh

[R Get A Badge](#)

ResearcherID

[Labs](#)

ResearcherID: D-1034-2011

My Institutions [\(more details\)](#)

Other Names: Ashutosh Sharma IITK

Primary Institution: Indian Institute of Technology - Kanpur

URL: <http://www.researcherid.com/rid/D-1034-2011>

Sub-org/Dept:

Subject: Chemistry; Engineering; Environmental Sciences & Ecology; Materials Science; Mechanics; Ophthalmology; Physics; Polymer Science

Role: Faculty

Keywords: nanotechnology; nanofabrication; thin polymer films; wetting; adhesion; soft lithographies; carbon nanocomposites; carbon mems/nems; chemical engineering

ORCID: <http://orcid.org/0000-0002-2653-0806>

11,034
Researcher IDs
from India

Description: Ashutosh Sharma at IIT Kanpur has worked on both theory and experiments related to a wide spectrum of problems on soft materials, colloids and interfaces, confined systems and functional materials. His latest areas of interest include thin films and coatings, smart and functional interfaces, soft adhesion and novel adhesives, wetting, nano-composites, meso-patterning of polymers, ceramics, hydrogels and carbon, carbon MEMS, nano-mechanics of interfaces and meso-scale systems, self-assembly and self-organization.

My URLs: <http://www.iitk.ac.in/che/as.htm/>
<http://scholar.google.co.in/citations?user=MmjJMIAAAAJ&hl=en>
<http://www.iitk.ac.in/nanoscience/>

Hyperlink to Shodhganga

Expert Id : 28865



Dr. I Ramesh Babu, ,
M E, Ph D,(Computer Engineerin...
Acharya Nagarjuna University

Status : Working

Expert Contributions



As Research Guide

As Author of Book

Expertise

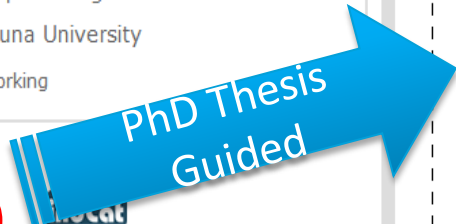
Areas of expertise : Image Processing

Sub area : Computer Graphics,Information Technology,Business Data Processing,Software Engineering

Experience

Organisation : Acharya Nagarjuna University Organisation : State University Type

Designation : Professor Department : Department of Computer Science and Engineering



New User | Login as : Shodhganga User | University Coordinator | Administration

Search Shodhganga

Advanced Search

Home

Browse

- Universities & Departments
- Issue Date
- Researcher/Guide
- Title
- Keyword
- University

Top Contributing Universities

Indian ETD Repository @ INFLIBNET >

Browsing by Researcher/Guide Ramesh Babu, I

Jump to: 0-9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

or enter first few letters:

Sort by: title In order: Ascending Results/Page 20 Contributors/Record: All Update


Showing results 1 to 3 of 3

Issue Date	Title	Researcher	Guide(s)
23-Apr-2013	Authentication of 3D fuzzy vault using invariant facial features	Venkata Swarajy Lakshmi, P	Ramesh Babu, I
23-Apr-2013	Maximizing channel utilization in mobile Adhoc networks using an adaptive distributed broadcast scheduling, power adaption and rate control	Madhavi, S	Ramesh Babu, I
23-Apr-2013	Robust watermarking method for images based on noise density	Syed Muneer	Ramesh Babu, I




Showing results 1 to 3 of 3

Hyperlink to IndCat: Book Database

Expert Id : 29446

 Dr. K K Kannan,
M.Pharm., Ph.D.-Pharmaceutical...
Annamalai University
Status : Working

Expert Contributions

As Research Guide As Author of Book

Expertise

Areas of expertise : Pharmaceutical Analysis

Sub area : Pharmaceutical Capsule Technology, Enantioselective Analytical

Experience

Organisation : Annamalai University Organisation : State University
Designation : Professor Department : Department of Institute of

indcat.inflibnet.ac.in/ebooksearch.jsp?fieldValue=Kannan%20K

Online Catalogue of Books

[Advanced Search](#) | [Statewise Search](#)

Author: Kannan K Search

Search term **Kannan K**

- 1 Politics And Society In South Eastern Nigeria 1841-1906: A Study Of Powerdiplomacy And Commerce In Old Calabar
Author: Nair Kannan
Publisher & Place: Frank Cass, London,
- 2 Bio-denogrpahic Study Of Karhminis
Author: Sadhu Kannan K
Publisher & Place: ,,
- 3 Kar Narpadu
Author: Kannan Koothanar
Publisher & Place: [s.n.], [s.l.],
- 4 Karnarpathu
Author: Kannan Koothanar M
Publisher & Place: [s.n.], [s.l.],
- 5 Noie Arithal
Author: Kannan K
Publisher & Place: ,,
- 6 Sarkarai Noium Sigichai Muraium
Author: Kannan K
Publisher & Place: ,,
- 7 Kalappai
Author: Kannan K
Publisher & Place: Manimozhi Pathippagam,,

METHODOLOGY

Methods of Populating Vidwan



Invitation to

- Awardees / Citation Laureates
- Fellows of major Academy



Nomination by

- Presidents of Scientific Societies
- Vice Chancellors /Directors
- Heads of R & D Organisation



Nomination by

- Alumni Associations
- Associations at abroad for Indian Origin
- Global Indian Network of Knowledge



Voluntary

- ✓ Registration by the experts

Merging Structured Data from Other Initiatives

Start

1
Invitation



Invitation

Send Invitation to Experts to Join @ VIDWAN



Awardees / Citation Laureates

- ✓ Padma Awardees
- ✓ ICSSR - Amartya Sen Awards for Distinguished Social Scientists
- ✓ India Science Award
- ✓ ICAR Norman Borlaug Award
- ✓ Shanti Swarup Bhatnagar Award
- ✓ Jagadish Chandra Bose National Fellowship Award
- ✓ National Bioscience Awards
- ✓ Jagdish Chandra Bose Award for Research in Life Sciences
- ✓ Sir C.V. Raman Award for Research in Physical Sciences
- ✓ Meghnad Saha Award for Research in Theoretical Sciences
- ✓ Homi J. Bhabha Award for Research in Applied Sciences
- ✓ Award to outstanding Scientists/Social Scientists in the field of Interaction between Science and Society
- ✓ Hari Om Ashram Alembic Research Award for Medical Professional
- ✓ Rafi Ahmed Kidwai Award for Outstanding Research in Agricultural
- ✓ G.D. Birla Award for Scientific Research
- ✓ Thomson Reuters Research Excellence India Citation Awards
- ✓ NASI Scopus Young Scientist Award
- ✓ Ramanujan Fellowship Program
- ✓ Innovation in Science Pursuit for Inspired Research Fellowship
- ✓ Ramalingaswami Re-Entry Fellowship
- ✓ Energy Biosciences Overseas Fellowship

Methods: Registration Process for Nominated & Voluntary



Voluntary

Start



Voluntary Registration

Personal information, Qualification, Experience, Expertise and Publication details



Criteria for inclusion of experts @ VIDWAN

No



Regret and inform to applicant

Yes

- ✓ Ph.D degree
- ✓ Associate Professor / Professor /Senior Scientist

Publish

Acknowledge to expert and publish their profiles on VIDWAN

Laureates



Criteria

Start



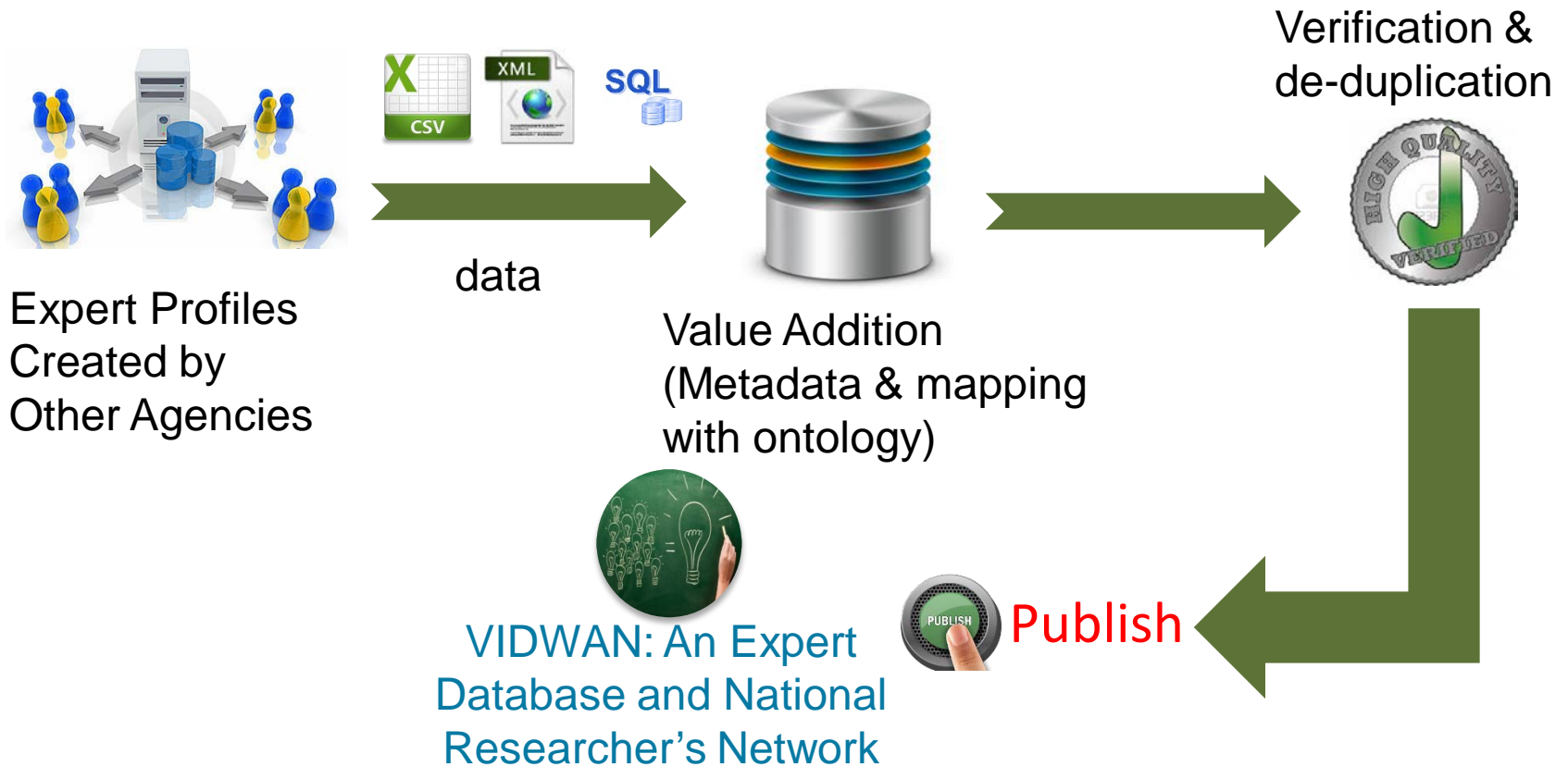
Nomination

Letter to Invited Experts / Institutes / Associations R & D Organisations to Nominate Experts

Nomination

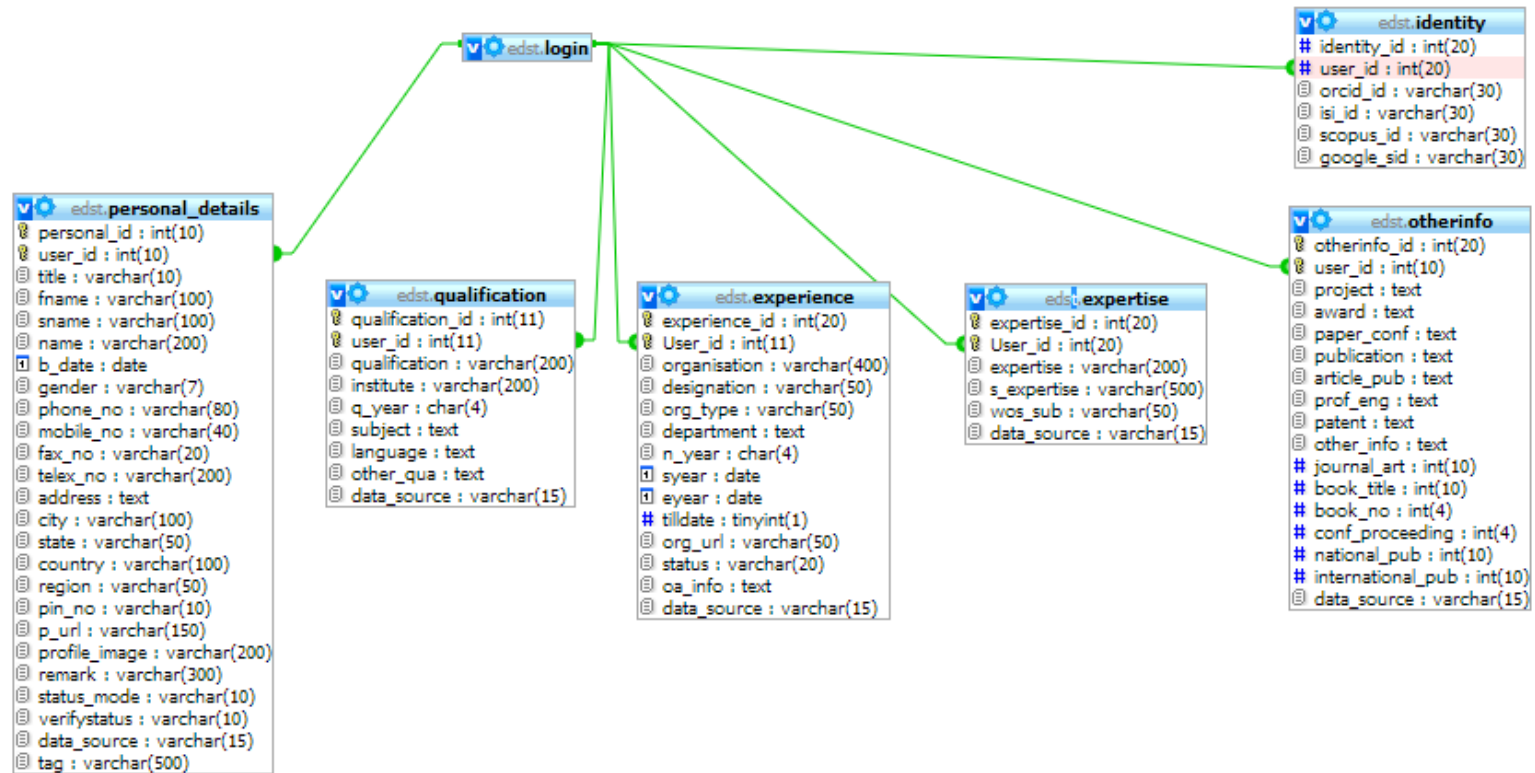
- ✓ Directors General of Scientific Organizations (CSIR, DRDO, ICAR, ICMR)
- ✓ Presidents of Scientific Societies and Academies in India
- ✓ Chairman UGC
- ✓ Vice Chancellors /Directors of Universities and Deemed Universities
- ✓ Heads of R & D Institutions / Institutions of National Importance
- ✓ Alumni Associations (PAN IIT)
- ✓ Associations at abroad for Indian Origin
- ✓ Global Indian Network of Knowledge

Vidwan: Merging Structured Data from Other Initiatives





Database Structure



PROPOSED FINANCIAL ESTIMATION 2014-2015: RS. 30.00 LAKHS

Non Recurring Expenses

Item	No of Item	Cost (Rs in Lakh)	Cost (Rs in Lakh)
Development Server	1	3.00	3.00
Workstation / PC / Printer / Scanner	10		4.00
Total			7.00

Recurring Expenses

Consumable, Travel, Miscellaneous

Items of Expenditure	Total Amount (Rs in Lakhs)
Consumables and Stationery + Miscellaneous	1.00
Travel	4.00
Promotional Activity	3.00
Printing of Brochures & Pamphlets	3.00
Total	11.00

Manpower Expenses (contract)

Designation	Numbers	Total Amount Rs in Lakhs Per Annum
Project Officer	1	3.00
Project Associate	3	5.50
Project Assistant	3	4.50
Total		13.00

PROPOSED FINANCIAL ESTIMATION (2015-2016): RS. 11.60 LAKHS

Recurring Expenses

Consumable, Travel, Miscellaneous

Items of Expenditure	Total Amount (Rs in Lakhs)
Travel / Consumables and Stationery + Miscellaneous	1.00
Promotional Activity including Printing of Brochures & Pamphlets	1.00
Hardware Maintenance Cost @10% of 7 lakhs	0.70
Total	2.70

Manpower Expenses (contract)

Designation	Numbers	Total Amount Rs in Lakhs Per Annum
Project Officer	1	3.00
Project Associate	2	3.60
Project Assistant	1	1.50
10 % Increment		0.81
Total		8.91

Proposed Financial Estimation (2016-2017): Rs. 10.09 lakhs

POLICY DECISION (TO OUTREACH AMONG INDIAN ACADEMICIAN)

- **UGC / MHRD / AICTE may take a policy decision that they would select their experts using VIDWAN database. As such, all experts should register themselves with Vidwan and obtain Vidwan ID**
- **UGC / AICTE / MHRD / others regulatory body may give direction to all the universities, technical institutions and R&D organisations to register with VIDWAN database and get VIDWAN ID for their unique identification as an expert**

DATA PROTECTION & PRIVACY POLICY

- **Purpose of the database, participating agency and end user**
- **Eligibility criteria for an expert**
- **Mandatory fields for expert registration and provision to hide expert's privacy information**
- **Data processing methodology**
- **Declaration by the expert**

DATA RENEWAL AND UPDATE POLICY

- **The experts will be requested to confirm their interest periodically (annually) to remain listed in the database and to update profile**
- **Institutional level login will be given to the concern institution to update the profiles of concern institute to the authorised person**

Thanks