

File No.NMEICT(MS)/PAB/25  
Government of India  
Ministry of Human Resource Development  
Department of Higher Education

8<sup>th</sup> October, 2012

To,

All Members of the Project Approval Board  
of National Mission on Education through Information  
and Communication Technology

**Sub: 25<sup>th</sup> Meeting of the Project Approval Board of National Mission on Education  
through Information and Communication Technology to be held on 31<sup>st</sup>  
October, 2012 at 3.00 p.m.**

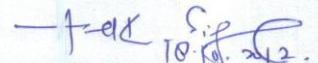
Sir/Madam,

I am directed to inform that 25<sup>th</sup> Meeting of the Project Approval Board of National Mission on Education through Information and Communication Technology has been scheduled to be held on **31<sup>st</sup> October, 2012 at 3.00 p.m. at Shastri Bhawan, New Delhi** under the Chairmanship of Secretary (HE), Ministry of Human Resource Development, Government of India, New-Delhi.

The exact venue of the meeting will be separately communicated.

Kindly make it convenient to attend the meeting.

Yours faithfully,



(A.K. Singh)

Director (ICT) &  
Nodal Officer (NMEICT)  
Tel 011-23384276

Copy to:

1. PSO to Secretary (HE)
2. PS to AS(TEL)
3. PS to JS&FA
4. US(TEL)

**AGENDA FOR 25<sup>th</sup> MEETING OF PROJECT APPROVAL BOARD OF NATIONAL MISSION ON EDUCATION THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY TO BE HELD ON 6<sup>th</sup> NOVEMBER 2012 AT 3.00 P.M. IN CONFERENCE ROOM NO.112-C-WING (FIRST FLOOR), SHASTRI BHAVAN, DR.RAJENDRA PRASAD ROAD, NEW DELHI**

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**Item No.1**

The Minutes of the 24<sup>th</sup> Meeting of the Project Approval Board held on 4<sup>th</sup> October, 2012 are placed for perusal and confirmation please (**Appendix-1 - Page No.28-58**).

**Item No.2**

The “Action Taken Report” on the Minutes of the 24<sup>th</sup> Meeting of the Project Approval Board held on 4<sup>th</sup> October, 2012, is given at **Appendix-2 (Page No.59-70)**.

### **Item No.3**

#### **Intimation of “Financial Due Diligence of projects” earlier approved by PAB:**

**Talk to a Teacher (also known as Teachers empowerment, students empowerment, and integration of tools for empowerment – synchronous delivery) – Phase 2, PI: Kannan Moudgalya, D. B. Phatak and Somnath Sengupta Inst.: IIT Bombay and IIT Kharagpur**

The Standing Committee of NMEICT in its meeting held on 27<sup>th</sup> July, 2012 deliberated the project.

#### **The Extracts of the SC Meeting held on 27<sup>th</sup> July, 2012 are given below:**

Kannan Moudgalya recused himself as a member of the standing Committee, as he is the PI of this Project.

Kannan Moudgalya presented a new proposal on a 10,000 teacher training programme and spoken tutorials. He already presented a detailed report on the current status of this project in the SC meeting held on 22 June 2012.

It is proposed to include IIT Kharagpur as a new partner in this project. Prof. Somnath Sengupta, Dean of Continuing Education at IIT Kharagpur, is the Co-PI from IIT Kharagpur.

The current proposal is for the second phase of this project. The present 1,000 teacher training programme is now proposed to be enhanced to a 10,000 teacher training programme. The PIs propose to conduct 15 of such training programme, each of ten day duration. They also propose to establish 10 nodal centres and 500 remote centres. The objective of the nodal centres is to help coordinate the nearby remote centres. The PIs will try to bring the nodal centres to the level of IIT Bombay and IIT Kharagpur during the course of this project, with respect to the conduct of such training programme. The remote centres will be distributed across the country. Most of the Nodal and Remote Centres will be institutions other than IITs.

One important benefit in having large numbers of Remote centres all over the country is the reduction in the travel time of participants for these training programme: they can go to a nearby centre. As a result of this exercise, the TA/DA per person for a ten day training programme is estimated to come down to Rs. 6,500 from Rs. 9,500, which was the estimated amount in Phase 1. If the PIs succeed in establishing remote centres in areas with large number of teachers wishing to enroll in the training programme, the actual TA/DA in this phase can end up being lower than Rs. 6,500 per person.

The PI has already presented the status of the spoken tutorial activity in the SC meeting held on 22 June 2012. In the next phase, he proposes to create 500 original spoken tutorials and 5,000 dubbed spoken tutorials. He also plans to train 1,50,000 students in three years.

During the presentation, Prof. Phatak mentioned that the budget was incorrect by Rs. 60 lakhs with respect to the creation of 500 Remote Centres. The SC asks the PI to correct this mistake and to re-upload the proposal on the Sakshat site.

The budget for both of the two activities mentioned above for three years amounts to Rs.197.20 crore, after taking the above mentioned correction into account. Out of this, Rs. 60.75 crore is IIT Kharagpur's part. The balance is IIT Bombay's part. The major component of this budget is the TA/DA for the 1,50,000 teachers, proposed to be trained through 15 courses. This works out to Rs. 97.50 crore, which is calculated on the basis of Rs.6,500 per teacher. The next major component of this budget is for establishing nodal and remote centres, which comes to Rs. 40.50 crore.

The Standing Committee appreciates the work done by the PI in coming up with methodologies to scale up the training programme from 1,000 teachers at a time to 10,000 teachers. The SC welcomes the initiative to train 1,50,000 teachers at a substantially lesser TA/DA compared to the previous phase. The SC urges the PIs to explore ways to reduce this amount further. The SC wishes that the number of simultaneous participants be increased from 10,000 to a larger number, at least for a few courses. The SC wishes that eventually the number of remote centres should cover all engineering colleges and through them, good academic programme can reach all colleges and all 8.5 lakh teachers.

The SC also appreciates the excellent work done through spoken tutorials. The SC commends the PI for coming up with a model to conduct a large number of workshops without the payment of TA/DA and without domain experts. The spoken tutorial methodology will be useful to promote IT literacy, to improve employment and to bridge digital divide.

The SC strongly recommends this project proposal.

**Further, the Project Approval Board in its 24<sup>th</sup> meeting held on 4<sup>th</sup> October, 2012 decided the following:**

Prof. D.B. Phatak and Prof. Kannan Moudgalya from IIT Bombay made a detailed presentation on the "Talk to a Teacher Project". PAB was apprized that "Talk to a Teacher" is a massive programme, involving training of 1,50,000 teachers and the establishment of Remote Centers and Hubs. Fifteen (15) training programs for 10,000 teachers each will be conducted under the project and 1,50,000 teachers will be trained in 3 years.

PAB deliberated on this proposal in detail. Questions were asked about the usage of the infrastructure created under this project (i.e. the Remote Centers and Hubs). It was clarified by the PI that the infrastructure would be available not only to this project but could also be used for other multi-location training programs being conducted by the Ministry of HRD.

After detailed deliberations, PAB approved the proposal subject to the financials being re-verified. Chairman PAB suggested that since it is a large project, Prof. Phatak, the PI of the project, AS (TEL) & Mission Director and FA may go through the proposal in detail and examine whether budget is as per set norms or not. **Outcome of the discussions and the figures may be put in the next PAB meeting.**

The said meeting was held on 9.10.2012 at 11:00 A.M. in the Ministry. The minutes of the meeting with FA as well as the revised proposal is attached (**Page**

**No. 43)**, which arrives at a total financial outlay of Rs. 192 crore for a 3 year project period wherein 500 remote centres, 10 nodal centres apart from the central hub would get established and 1,50,000 technical teachers would get trained for 10 working days each. The centres would be available for other institutions trying to offer teacher training programme in other disciplines, following the methodology of 10,000 teachers training programme developed by IIT Bombay under NMEICT. This outlay includes Rs. 11.57 crore for activities related to Spoken Tutorials wherein 500 original tutorials and 5000 dubbed tutorials would be created and 1,50,000 students would undergo training through self workshops on any topic of their choice available under Spoken Tutorials.

The Appraisal of above proposal by Standing Committee in its meeting held on 27<sup>th</sup> October, 2012 is **attached (Page No. 77-78)**.

The above is submitted for information to PAB.

#### **Item No.4**

##### **Approval of projects recommended by the Standing Committee**

- 4.1. E-content generation in 17 subjects in Electronics and Communication using Learning-by-doing (or 'butterfly') model by Prof. Sandhya Kode and Prof. Kannan Srinathan, IIIT Hyderabad.**

**This item was placed in the 23<sup>rd</sup> PAB and 24<sup>th</sup> PAB but it was deferred for the next meeting.**

The Standing Committee of NMEICT in its meeting held on 22<sup>nd</sup> February, 2012 recommended Rs.119 lakhs for the 17 courses.

##### **The Extracts of the SC Meeting held on 22<sup>nd</sup> Feb, 2012 are given below:**

Prof. Sandhya Kode had made presentations earlier on the same and had been requested to revise her proposal from its proposed budget of Rs. 10 lakhs to the lowest possible. The learning-by-doing as a pilot was given and was well received at Rs. 30 lakhs for three courses. However, the facilities created in the pilot and the experience gained in the process would have to be taken into account and her current proposal for 17 courses at the rate of Rs. 7 lakhs is reasonable.

Any cost overrun will be indicated by her and prior sanction will be taken before approving additional budget. It was also suggested by her that several courses are at the under-graduate level and therefore, she would not include in the content creation process, the research and analysis requirements of the Bloom's taxonomy for the Butterfly model. The committee approved her proposal in its entire form since the course contents created will be a valuable add on to on the content creation schemes by including interactive learning in the design of the course itself. A sum of Rs. 119 lakhs for 17 courses is recommended.

The Appraisal of above proposal by Standing Committee undertaken on 31<sup>st</sup> October, 2012 is **attached (Page No. 71-72)**.

PAB may please consider the above Proposal.

- 4.2. Developing suitable Pedagogical methods for various classes, Intellectual Calibers and Research in e-learning, PI: Prof. Anup K Ray, Anchor Institution: IIT Kharagpur, Control No.: ARE 04061212597**

This item was placed in the 24<sup>th</sup> PAB but it was deferred for the next meeting.

The Standing Committee of NMEICT in its meeting held on 8<sup>th</sup> June, 2012 recommended this project.



**The Extracts of the SC Meeting held on 8<sup>th</sup> June, 2012 are given below:**

Developing suitable pedagogical methods for various classes, intellectual calibers and research in e-learning.

What has been completed: 450 faculty members from 50 institutions have participated. Eighty courses have been completed with 22 units or more. Ten courses have been completed with 40 units.

The proposal is to complete 120 courses and complete the 80 pilots (from 22 units to 40 units). In addition, to organize 6 national seminars, 6 national training workshops, 12 regional seminars, 12 regional training workshops, 1 national conference, 1 international conference

The budget for this project is Rs. 16 crore. It is proposed to be completed in three years.

The SC commends the PI for an excellent work in the pilot project. It asks the PI to come up with methods to adopt the methods proposed in this approach and to evaluate the efficacy. The PI mentioned that this was too difficult to be undertaken in this phase, although an initial effort will be undertaken.

The SC strongly recommends this project.

**Further, the Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 deliberated the proposal.**

**The extracts of the SC meeting held on 31<sup>st</sup> October, 2012 are as follows:**

The objective of the pilot phase project was to develop sample Outcomes Based Curriculum Document for B. Tech Courses. Sample Outcomes-based Curriculum Document for around 80 B. Tech courses is complete to the planned level proposed in the pilot phase (22 units out of 40 units). In the main phase it is proposed to develop complete pedagogical framework for 200 UG level semester long engineering courses in selected disciplines of which 120 will be new courses and 80 courses so far developed will be completed. It is also proposed to train large number of faculty on developing Outcome Based Curriculum document, through regional workshops.

Prof. Ray further clarified that the deliverables of the project are to develop pedagogical framework and not the content for 200 UG level courses comprising:

- Course background (institution mission/ vision, course list)
- Course overview, course objectives, course level problems with solutions (around 3-4), 6 to 10 modules in each course with module overview, objectives, module level problems (around 20) and module summary (12-16 pages)
- Each module to have 5-6 units with unit level problems and solutions.

The total cost of the main phase project for three years duration will be **Rs. 15,46,00,000**. The **average cost per student** will be around **Rs. 50** considering expected enrolment of 32 lakhs students in 2013. The major breakups are as follows:

- i) Capital expenditure: Rs. 60, 00,000 (to be shared by 15 institutions over 3 years for 900 faculty).
- ii) Revenue Expenditure: Rs. 14,86,00,000

**SC Decision:**

- SC appreciated the effort made in the pilot phase and strongly recommended the continuation of the project in the main phase.
- SC found the proposed budget for the main phase is quite reasonable.
- Pilot phase closure will be required to carry forward the project in the main phase. PI was suggested to conduct the PRSG meeting at the earliest for the Pilot Project closure report.

The Appraisal of above proposal by Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 (**Page No. 73-76**).

PAB may please consider the above Proposal.

**4.3 Title: E-Resources for Geo-Informatics Applications, Education and Training, PI: Prof. Mrs. Venkatachalam, Head, CSRE, IIT Bombay with several Co-PIs, Inst: IIT Bombay representing 12 institutions, Control no: HE-11081011220**

**The extracts of Standing Committee held on 23<sup>rd</sup> March, 2012 are given below:**

The Members appreciated the efforts put up by the PI in taking up the project on Geo-Informatics. The Members offered their comments, the Members further felt that since there will be regular need for the data collected under the project by the learners, the PI may plan how to keep the services going on after the expiry of the project. It was also observed that the PI has reduced the budget from about 5 crores to about 3 crores; however, the budget proposal under the sub-heads such as the manpower, travels and honorarium still needs to be looked into. The PI may incorporate the suggestions offered by the Members and upload the revised project on the sakshat for approval by the competent authorities.

**The extracts of Standing Committee held on 27<sup>th</sup> July, 2012 are given below:**

Prof. Mrs. Venkatachalam, Head of Centre of Studies in Resources Engineering (CSRE), IIT Bombay, presented this proposal a third time to the SC. She proposed it the first time in the SC meeting held in March 2011, with a budget of Rs.5.06 crore. While appreciating the proposal, the SC had asked her to reduce the budget. The PI presented a revised proposal in the SC meeting held on 23

March 2012. At that time, the budget was brought down to about Rs. 3 crore. They had achieved this reduction by asking the partner institutions to contribute to some of the resources, such as data and software, without billing this project. After this second presentation to the SC, the PI was asked to see if they could reduce the budget under manpower, travels and honorarium. In the current meeting, the costing under these heads is reduced, bringing the overall budget down to Rs. 2.502 crore. The PI mentioned that although the budget is halved, there will be no change in the deliverables of the project, as envisioned during the first presentation to the SC. The duration of this project is 30 months.

The SC appreciates the efforts put in by the PI and the Co-PIs to present an acceptable proposal, without affecting the final deliverables and quality. The SC recommends this project proposal.

Mrs. Venkatachalam proposes that the Head of CSRE, IIT Bombay, will be ex-officio PI of this project. The SC accepts this suggestion.

**The Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 deliberated the proposal.**

**The extracts of the SC meeting held on 31<sup>st</sup> October, 2012 are as follows:**

The SC during its meeting held on 23<sup>rd</sup> March, 2012 had approved this proposal after the PI was suggested to make a number of revisions to his proposal. In its meeting held on 31<sup>st</sup> October, 2012, the SC reviewed the 10 Point Format, submitted by the PI.

**SC Decision:**

SC appreciated the proposal and found that the proposal is unique and importance to the learners in India.

SC also reviewed the budget in detail and found the revised budget of Rs.2.50 crores to be reasonable for the amount of work projected in the proposal.

The Appraisal of above proposal by Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 is **attached (Page No. 81-83)**.

PAB may please consider the above Proposal.

**4.4. Digital Literacy And Empowerment of Teachers in ICT, PI: Dr. Abhijeet Singh, Banaras Hindu University, (Control No. DMI04091212722)**

The Standing Committee of NMEICT in its meeting held on 31<sup>st</sup> October, 2012 deliberated the proposal.

**The extracts of the SC Meeting held on 31<sup>st</sup> October, 2012 are as follows:**

The PI informed that initial presentation was done in the presence of the Mission Director, Mr. N.K. Sinha on 26<sup>th</sup> September, 2012 followed up by the presentation to the Standing Committee on September 27, 2012. The Committee

recommended a pilot for 25,000 teachers to be started with a budget of Rs. 82.5 Lakhs.

The second presentation of the same project was done on 18<sup>th</sup> October, 2012 wherein it was suggested to spell out the Learning Objectives clearly among other things. The proposal was approved in principle and PI was requested to revise the proposal as per suggestions of the PI.

The PI informed that following changes have been made as per the suggestions of the SC:

1. The training will be only in Libre Office and the OS will be Linux and no proprietary software will be used.
2. The control and monitoring mechanism should be done as mentioned and ISTE should be collaborated with for assessment and accreditation.
3. In the Pilot phase 25,000 teachers are to be trained in ICT and the duration of the project will be six months with a budget of Rs. 82.5 Lakhs.

**SC Decision:**

SC found the revised proposal at par with the requirement of NMEICT objectives and felt the budget to be quite reasonable. SC recommended the proposal for consideration of the PAB for Rs.82.5 Lakhs to train 25,000 Teachers in six months (Pilot Phase) as recommended in earlier two meetings.

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The Appraisal undertaken by Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 is attached (**Page No. 84-85**).

## **Item No.5**

### **Setting up of Teaching ends at leading Institutes in the Country for generation of Content for 50 DTH Educational Channels under NME-ICT**

The 'Cabinet Committee on Economic Affairs' has on January 2, 2009 approved a Centrally Sponsored Plan Scheme, namely, National Mission on Education through Information and Communication Technology (NME-ICT), which besides other activities includes setting up of 1000 educational DTH channels .

The Department of Space vide letter No.SCNP/F.711/10/11 Dated December 15, 2011 has communicated that based on MHRD request, two Ku-band transponders (36x2 MHz spectrum) in GSAT-8 Satellite is allotted to MHRD for its DTH programme.

Based on the capacity of the spectrum allotted to MHRD, the DTH Committee decided to launch 50 educational DTH channels, using the allotted satellite transponders.

The 23<sup>rd</sup> PAB in its meeting held on 28<sup>th</sup> February 2012 approved obtaining the services of M/s. Telecommunication Consultants India Limited (TCIL) a PSU under the Ministry of Communications and Information Technology for finding a Teleport Agency for engagement of up-linking 50 DTH channels of MHRD at one time payment decided by the DTH Committee through a transparent process as the PAB is not part of any tendering process.

The Technical Expert Committee (a sub-committee) constituted by the DTH Committee & M/s TCIL have submitted a 'Request for Proposal' for finding a Teleport Agency for engagement of up-linking 50 DTH channels of MHRD. The RFP has been approved by the DTH Committee and is being processed for tendering by M/s TCIL and a successful bidder is likely to be awarded the contract soon for hiring Teleport/Earth station to carry our educational content to the satellite for direct Broadcast to homes.

The DTH Committee constituted by the MHRD, under the Chairmanship of Prof. S.V. Raghavan, Scientific Secretary, office of the Principal Scientific Adviser to the Government of India, during its 6<sup>th</sup> meeting held on August 4, 2012 at MHRD, inter-alia deliberated as follows:

“The Committee recognized that IIT Madras has since long been contributing towards e-learning in the country. IIT Madras is currently engaged in (i) Coordination of NPTEL Phase II (ii) Production of e-Content in a number of Courses, (iii) selection and procurement of equipment required by IITs under NPTEL programme.

The services rendered by the IIT Madras in the field of management of e-learning, in the country have been commendable. In view of this, the DTH Committee felt that Director, IIT Madras may be requested to help MHRD in some of the activities in setting up of DTH Teaching Ends etc.

The DTH Committee felt that the Director, IIT Madras be, therefore, requested to coordinate the following activities: (i) finalization of a list of equipment for DTH, Teaching End (TE), (ii) decide number of TE required for running of 50 DTH Channels (iii) Tender & negotiate for bulk purchase of TE Equipment on behalf of all TEs and (iv) ensure deployment of TE equipment in a time bound manner in 3 months. For this, a suitable committee may be constituted under the chairmanship of Director, IIT Madras, to accomplish the task”.

A request letter dated September 4, 2012 to this effect has been written by the Mission Director, NMEICT and Additional Secretary [TEL], MHRD to Prof Bhaskar Ramamurthi, Director, IIT, Madras.

Prof Bhaskar Ramamurthi, Director, IIT Madras, vide his reply letter dated 16<sup>th</sup> October, 2012 has accepted to Co-ordinate on setting up of DTH Teaching End, at institutions across the country. In this regard a joint proposal from Prof Bhaskar Ramamurthi, and Prof Mangala Sunder Krishnan, of IIT Madras, both as Principal Investigators has been received by the MHRD, with a budget outlay on setting up of 150 DTH Teaching Ends.

The DTH Committee, in its 8<sup>th</sup> meeting held on October 25, 2012, reviewed the summary Proposal received from IIT Madras, for creating 150 Teaching Ends (TEs) a online 24/7 feeds to 50 DTH Channels to be established under NMEICT.

The members present during 8<sup>th</sup> DTH Committee have offered a number of comments and suggestions to the proposal. Further the Chairman, DTH, Committee, requested technical team from the CEC and IGNOU to offer their specific inputs on the design of equipment package including projected cost etc., for establishing the Teaching Ends to Convener, DTH committee.

A number of inputs on design of Teaching End equipment package were received from IIT, Madras, IGNOU and CEC. Based on these inputs and a draft TE equipment package circulated during 6<sup>th</sup> DTH Committee meeting held on August 4, 2012 and the feedback received on this during the meeting and based on the recommendations received during 8<sup>th</sup> DTH Committee meeting, a draft Teaching End equipments required at each of the TE Centre, including its budgetary prices has been prepared by the Convener, DTH also further detailed cost analysis on this has been carried out.

The Teaching End Expert Committee (TEEC) for finalizing the specification/RFP constituted by the Director, IIT Madras shall take into account the present TE package, compiled and shall further deliberate on it in detail and shall finalise the Teaching End equipment package. The TE list shall finally be approved by the DTH Committee. At present the TE equipment list is tentative and for seeking approval from the Project Approval board for approving budget on account that may be sanctioned to IIT Madras.

The Following is submitted for kind consideration of PAB:

- (A) A detailed “DTH Teaching End equipment package, budgetary, cost analysis, its social objectives, network topology & central institutes” as compiled by the Convener, DTH at Annexure (Page No. 16-25).**

It may be seen from (A) above that,

- (B) Total Budget on DTH is as follows:**

- (a) Total Non-Recurring budget for setting up 153 Teaching Ends across the country is Rs.088.49 Crores;
- (b) Total Recurring cost/Annum for generation of content amounting to 1825 courses (40 Lectures, 1 hour each) for a number of subjects & transmitting the fresh &

live content 8 hours a day and live interaction after each lesson between Teacher & students spread across country, repeating the content twice in 24 hours, further repeating the Content after 6 months on 50 DTH channel is costing Rs.124.24 Crores.

As per above the:

**(C) Budget for DTH Setup & Content Generation for remaining 4 years of XII<sup>th</sup> Plan is:**

(Content broadcast twice a year)

- a) Non-Recurring budget,(Rs.088.49 Crores) and Recurring budget (on Eq.) for remaining 4 years of XII<sup>th</sup> Plan (Rs.109.28 Crores) is **Rs.197.77 Crores**

- b) Recurring Budget on account of content development Total-Recurring budget on Content Generation for remaining 4 years of XII<sup>th</sup> Plan is **Rs.374.96 Crores.**

- c) A number of **7300 courses** (40 Lectures, 1 hour each) shall be produced and delivered out of Non-Recurring & Recurring Budget and it is repeated in six months time.

**(D) The funding for the DTH project is proposed to be debited from:**

(Content broadcast twice a year)

- a) Non-Recurring budget during remaining 4 years of XII<sup>th</sup> Plan of **Rs.197.77 Crores** may be debited from DTH budget
- b) And Recurring Budget on account of **7300 course** content developments for remaining 4 years of XII<sup>th</sup> Plan I.e., **Rs.374.96 Crores** be debited from **e-content development budget available** under NMEICT.

**Put up (A), (D) a) & b) for kind Approval of PAB.**



Ministry of Human Resource Development  
Department of Higher Education

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**“DTH TEACHING END EQUIPMENT PACKAGE, BUDGETARY, COST ANALYSIS, ITS  
SOCIAL OBJECTIVES, NETWORK TOPOLOGY & CENTRAL INSTITUTES”**

**(A) Equipment required at DTH Teaching Ends, working on 10X7X365 Basis.**

S.N	Equipment	Make / Mod e	Qty.	Tentative Cost in Rs Lakhs
1	Broadcast PTZ cameras, wall mount, Cam Remote operations		3	11
2	Vision Mixer with Multi-viewer o/p		1	5
3	Audio Mixer		1	1.5
4	42" LCD Multi-viewer (HDMI ports)		1	0.75
5	Wireless & Lapel Microphones		5	2
6	IR Touch Screen LCD White board		1	3.5
7	HDD Recorder/Server		1	3
8	Scan converter VGA, HDMI-PAL		1	1
9	Graphic Gen & Scroll (Hw+Sw)		1	2.5
10	A-V NLE editing set up		1	4
11	PC/Laptop		3	1.25
12	8 Port LAN Sw		2	0.25
13	Encoder AVC		1	3.5
14	NMEICT/NKN Broadband Interface Terminal & IP Switch		1	0.5
15	Telephone Hybrid Mixer.		2	0.65
16	Amplispeaker & Head Phones		2	0.5
17	Tel Land lines (2) & Broadband Internet (2)		1 Set	0.25
18	Cool Studio Lights & Fixtures		1 set	3
19	UPS/Inverter 2KW		1	1
20	Acoustic Treatment		1 set	3
21	Racks, Installation Kit, Intercom, Cables & Consumables		1 set	2.5
22	DTH Reception and TV		1set	0.35
23	Control, equipment room size 12X15x11ft (wxlxh) or better, to be provided by the institute.		1	0
24	Teaching End Studio/Room Size 20X35X12 ft., to be provided by the institute. Civil, Electrical, Earthing Modification Jobs		1	2.5
25	Air conditioners		3	2
26	Fire detector, alarm, extinguishers.		1 set	0.5
27	Tech (2) Prod (2) Academic Co-ordinator (1) Contractual staff		1 set	0
	TOTAL			56.00

**(B) Equipment required at DTH at Teleport End.**

1	AVC Decoders		55	193
2	OFC Network Management and Control System (Hw & Sw)		4	100
	TOTAL			293.00

**(C)** The Broadband Connectivity of 2 links of 10Mbps each would be provided to carry content between 150 Teaching Ends to Teleport End. For this the OFC/ MPLS network with end to end solutions created under NME-ICT/NKN would be utilised. The budget on this has not been included, at present.

**(D) Methodology and overall system Architecture:**

- a. Two Transponders on recently launched GSAT-8 have been allotted by the Department of Space to MHRD. The number of educational Channels to be launched is 50.
- b. Average duration of delivering one UG Subject is 500 Lectures during 3 years Course.
- c. 8 lectures delivered a day 500L/8H = 63 days, or 5.8 Subjects/ch/An
- d. i.e., 5.8 Subjects shall be delivered during one year over a Channel and on 50 Channels possibly about 292 UG subjects/Annum shall be delivered, besides some short Courses.
- e. Eight hours of fresh content shall be telecast a day, the content shall be recorded and repeated twice within twenty four hour period.
- f. However, when a subject is repeated during next six month, in that case 146 Subjects shall be delivered over a year over 50 Channels.
- g. A Subject Coordinator shall be engaged (to co-ordinate academic activities, selection and engagement of 'Academic Experts' & Scheduling of a Subject) by 'Central Institutes' and for this an honorarium of Rs.2.5 Lakhs may be paid to complete one Subject.
- h. An Academic Expert shall deliver Live lecture and shall be paid Honorarium/Sitting Fee of Rs.5000/- and TA of Rs.1000/- for delivering Live 60-80 mts. The Academic Expert is also required to submit the lecture plan, collection of graphics, pictures, animations scheme, question answers, Quiz / test, web-links, etc.
- i. A live lecture approximately of 40 mts of duration shall be delivered by a teacher, which shall be followed by about 20 mts of Q&A session as Live Interactivity (Through, video conferencing through Skype, AVIEW, etc., Land line/Mobile telephone, SMSs, e-mail etc) session with the students.
- j. Rental of Teleport / Earth Station Approx. Rs.1800.00 Lakhs/Annum
- k. Tech (2) Prod (2) Academic Co-ordinator (1) All Contractual staff, with Contractual fee of each Rs.25,000.00 PM +30% @ Sat + Sun + Holidays = Rs1.625 L/m + = Rs.19.50 Lakhs/annum/TE. Plus Constancy Fee raise/year of 15%
- l. AMC, Spares = 12%, No AMC for first 2 years or more.  
AMC, Spares of equipment after warranty period Approx., Rs12.0L
- m. Electricity cost & consumable, Rs.10.00 Lakhs/Annum

- n. In order to ensure that live content is generated regularly, it has been decided to create three Teaching Ends for a channel, their by about 150 Teaching Ends for generating content for 50 channels shall be created. Further, after delivery of a subject is complete, the same set or different set of Teaching Ends shall support generation of content for new Subjects.
- o. Three Teaching Ends shall be created at the Teleport End.
- p. The Teaching Ends shall be created at premier institutes across the country
- q. The system is designed and accounted to deliver content primarily on TV sets, however, it has the capability to deliver content on PC's, Laptops, Tablets (including Aakash), Smart phones, etc., budget for this has at present not been accounted for. The budget for this shall approximately be less than 10% of the Recurring budget of the project

**(E) Total Teaching End Package (one):**

i) Non-Recurring	Rs.56.00 Lakhs.
ii) Recurring/Annum	
a) staff	Rs.020.00 Lakhs
b) AMC, Elect, Cons, Toll Free Tel	Rs.010.00 Lakhs
c) Honorarium/Sitting Fee of Rs.5000/- and TA of Rs.1000/- to Academic Experts for delivering Live 60 mts. of Lectures = $6 \times 8 \times 50 \times 365 / 2 = 43.8 \text{ Cr}$ or per TE/Annum Rs.43.8 C/150	Rs.029.2 Lakhs
<b>d) Sub Total Recurring</b>	<b>Rs.63.2 Lakhs/An</b>
or of Lectures = $6 \times 8 \times 50 \times 365 = 87.6 \text{ Cr} =$	Rs.29.2 Lakhs
<b>e) Sub Total Recurring (no repeat in 6 months)</b>	<b>Rs.92.4 Lakhs</b>

**(F) Budget at Teaching End Package (150 TEs)**

a) Non-Recurring	Rs.084.00 Crores
b) Recurring/Annum	
i) Staff, AMC, Elec, Cons, Hon Subject Coordinator (5/Channel/An)	Rs088.80 Crores
ii) Rs.2.5Lakhsx5.8Sx50C/2	Rs.003.62 Crores
iii) Transponders (2)	Rs.009.50 Crores
<b>iv) Sub Total (b)</b>	<b>Rs.101.92 Crores</b>
<b>v) Sub Total Recurring (no repeat in 6 months)</b>	<b>Rs.148.74 Crores</b>

**(G) Budget at Teleport End.**

a) Non-Recurring	
I) Fiber Receive Eq	Rs.293.00 Lakhs
ii) TE, 3 Equipment Packages	Rs.156.00 Lakhs
iii) Total	Rs.449.00 Lakhs
b) Recurring/Annum	
I) Teleport Rental	Rs.18.00 Crore
II) 3TEs (3St+1Acc Hon+SE)	Rs.01.32 Crore
III) Total	Rs.19.32 Crores

**(H) Budget for Promos, Posters and Publicity**

i) @2% recurring budget	Rs.03.0 Crores
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**(I) Total Budget on 50 DTH Channels**

a) Non-Recurring	
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- I) TEs Rs.84.00 Crores  
 II) Teleport End Rs.04.49 Crores  
 III) Total Rs.88.49 Crores
- b) Recurring/Annum  
 I) TEs 150 Rs.101.92 Crores  
 II) Teleport End Rs.019.32 Crores  
 III) Publicity Rs.003.00 Crores  
 IV) Total (Repeat in 6 months) Rs.124.24 Crores  
 V) Total (no repeat in 6 months) Rs.171.06 Crores
- (J) Total Project Cost (Approx.)**  
 a) Total Non-Recurring Rs.088.49 Crores  
 b) Total Recurring (Content Rept 6 mts) Rs.124.24 Crores  
 c) Total when no repeat Tx. Rs.171.06 Crores

- (K) Non-Recurring Cost per Channel**  
 a) Total Non-Recurring Rs.88.49 Crores  
 b) Equipment good for 10 years. Per year Rs.08.85 Crores  
 c) Per Channel Cost 8.85C/50 **Rs.17.7**

**Lakhs/Channel/Annum**

- (L) Cost of Telecasting a Channel**  
 a) Total Non-Recurring Rs.88.49 Crores  
 b) Equipment good for 10 years. Per year Rs.08.85 Crores  
 c) Teleport rental/year Rs.18.00 Crores  
 e) Transponder Charges Rs.09.50 Crores  
 f) Total Rs.36.35 Crores  
 g) Per Channel Cost 36.35C/50 **Rs.72.70 Lakhs/Channel/Annum**

**(M) Elements of Budget spent for Content Generation:**

S.N.	Content repeated after 6 months	Rs. Crores	S.N.	Content not repeated	Rs. Crores
1	Refer F(b)(i)	88.80	1	Refer E(e) 92.4X150	138.60
2	Refer G(b)(ii)	01.32	2	Refer F(b)(ii) 3.62X2	7.24
			3	Refer G(b)(ii)	1.32
	<b>Total</b>	<b>93.74</b>		<b>Total</b>	<b>147.16</b>

**(N) Content generation analysis/Annum:**

Delivery	Hours/Channel	Courses/Channel	Courses/50 Ch's	Budget/50 Ch's	Rs. Per Course
Content repeated after 6 months	1460	36.5	1825	93.74 Crores	5,13,644
Content not repeated during the year	2920	73	3650	141.16	3,86,740

**(O) Total Project Cost (Approx.) for remaining XII<sup>th</sup> Plan**

- 1) Content fresh & live generated, teacher interactivity with students & delivering about full 146 UG subjects or 1825 Courses with **content repeat after six months** on MHRD DTH N/w.

a) **Total Non-Recurring budget** **Rs.088.49 Crores**

b) Total Recurring (non Cont.)/Annum **Rs.027.32 Crores**

c) **Total Recurring for remaining 4 years of XII<sup>th</sup> Plan** **Rs.109.28 Crores**

d) Total-Recurring on Content Generation/Annum **Rs.093.74 Crores**

e) Total-Recurring on Content Generation **Rs.374.96 Crores**  
**for remaining 4 years of XII<sup>th</sup> Plan**

- 2) Content fresh & live generated, teacher interactivity with students & delivering about full 292 UG subjects or 3650 Courses with **no repeat of Content during the year** on MHRD DTH N/w.

f) **Total Non-Recurring budget** **Rs.088.49 Crores**

g) Total Recurring/Annum **Rs.016.16 Crores**

h) **Total Recurring for remaining 4 years of XII<sup>th</sup> Plan** **Rs.067.60 Crores**

i) Total-Recurring on Content Generation/Annum **Rs.141.16 Crores**

j) Total-Recurring on Content Generation **Rs.564.64 Crores**  
**for remaining 4 years of XII<sup>th</sup> Plan**

**(P) Budget for DTH & Content for remaining 4 years of XII<sup>th</sup> Plan**

(Content broadcast twice a year)

It may be seen that Budget for MHRD DTH project has two parts:

- d) Non-Recurring and recurring budget on account of running the Channel  
Non-Recurring budget = Rs.088.49 Crores + Recurring budget for remaining 4 years of XII<sup>th</sup> Plan Rs.109.28 Crores is **Rs.197.77 Crores**
- e) Recurring Budget on account of content development  
Total-Recurring budget on Content Generation for remaining 4 years of XII<sup>th</sup> Plan is **Rs.374.96 Crores.**
- f) The Number of courses that shall be produced and delivered out of Recurring Budget on account of content development is **7300 Courses** and it is repeated in six months time.
- g) It is proposed that Recurring Budget on account of content development for remaining 4 years of XII<sup>th</sup> Plan i.e., **Rs.374.96 Crores** be budgeted out of **e-content development budget** under NMEICT.

or

**(Q) Budget for DTH & Content for remaining 4 years of XII<sup>th</sup> Plan**  
(Content broadcast once a year)

It may be seen that Budget for MHRD DTH project has two parts:

- a) Non-Recurring and recurring budget on account of running the Channel  
Non-Recurring budget = Rs.088.49 Crores + Recurring budget for remaining 4 years of XII<sup>th</sup> Plan Rs.67.60 Crores is **Rs.156.09 Crores**
- b) Recurring Budget on account of content development  
Total-Recurring budget on Content Generation for remaining 4 years of XII<sup>th</sup> Plan is **Rs.564.64 Crores.**
- c) The Number of courses that shall be produced and delivered out of Recurring Budget on account of content development is **14,600 Courses** with no repeat during the year.
- d) It is proposed that Recurring Budget on account of content development for remaining 4 years of XII<sup>th</sup> Plan i.e., **Rs.564.64 Crores** be budgeted out of **e-content development budget** under NMEICT.

**(R) NOTE:**

During remaining period of XII<sup>th</sup> Plan, through MHRD DTH Network, total delivery of about 58,40,000 hours of live and recorded content shall be delivered, which also includes live Interactivity of the Teacher with the students. The total content delivered shall amount to delivery of about 531 UG fresh subjects (each subject normally taught in 3 years) and equal number of subjects shall be repeated during the period. Further during a day's telecast the content shall itself be repeated twice.

**(S) Cost Benefit Analysis on Content Generation:**

- a) As per NME-ICT norms, for production of e-content per course of aprox. 40 Lectures each of 60 Mts duration costs Rs.7.00Lakhs or Rs.17500/- per Lecture.
- b) In comparison generation of one hour of Live Lecture and Live interactivity per course of 40 lecture shall cost Rs.3.86 Lakhs or Rs.9668/- per lecture.
- c) Generation of content DTH **just costs 55%** to NMEICT norms or a **saving of 45%**.
- d) **Generation and Delivery** of one Course (40 lectures, 1 hour each) of Live Content, Live Interaction of teacher with students and provision to reach 61% of Indian population (free to Air) is just at a cost of **Rs.4.9 Lakhs**. This represents true Country wide ICT Classroom programme.

**(T) On Content Dissemination through DTH.**

- a) Doordarshan is at present following the policy of e-Tendering and auctioning the spectrum for DTH, the current rates quoted are about Rs. 3.5 Crores per Channel per year.
- b) As seen from the tentative budgeting above, the cost for Telecasting one MHRD DTH Channel is Just Rs.71.15 Lakhs per Annum. This is **just 20%** to the rate charged by the Doordarshan and **80% cheaper**.

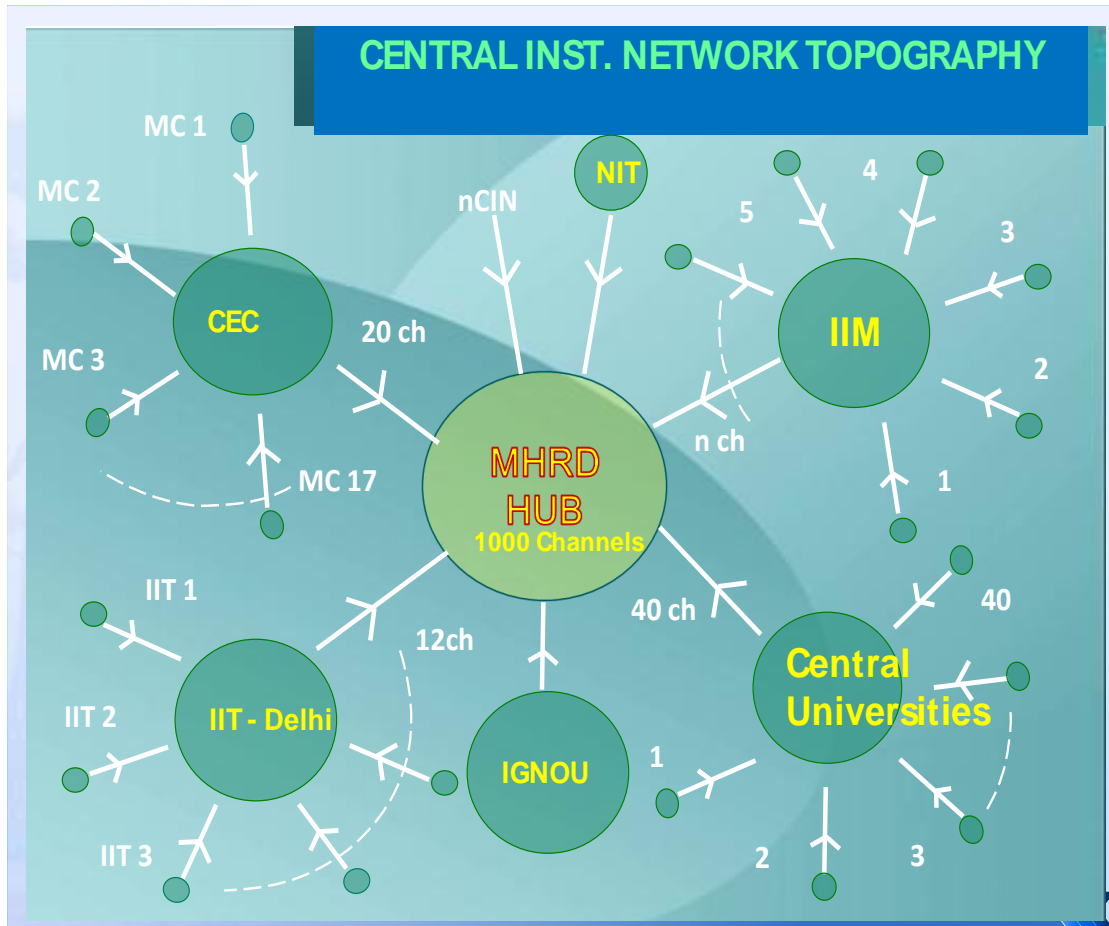
**(U) Meeting the Social Objectives**

By adopting the philosophy of delivering education through DTH: i.e. live content generation, live interactivity during each lecture in the form of question answer session between students and expert and the telecast reaching a potential 146 Million TV Homes in India, who by attaching a DTH Set Top Box costing around Rs.2000/- can receive the 50 channels, which are delivered FREE to AIR, is not only the most economic way to make available the education across the country (since we do not require to invest on Ground Reception Segment), but is also the quickest way to reach 73 Crores of citizens amounting to 61% of population. This delivery of education content is perhaps best and **most cost effective way** to achieve our composite goals of ensuring 'Access' with 'Equity' and 'Excellence' in higher Education in India and bridging the digital divide that exist in our society today. Besides this the content shall not only be delivered to learners on their TV sets, but shall also be delivered on their PC, Tablets (including Aakash Tablets) and Smart-phones.

**Disclaimer:**

The equipment list, numbers and price projected above are for reference only. However, equipment list, numbers & prices shall be finalised through a Teaching End Expert Committee and following Public Tender process.

## 'Hierarchical Star Network Topology for Content generation'



'Central Institutes' (as shown above) will act as Academic & Technical hubs. It shall be the responsibility of the 'Central Institutes' to look after the Academics and Content generation of Subject(s) being handled. The 'Central Institute' in turn shall further engage a number of institutes that are associated with them. In the beginning, 10 to 15 such 'Central Institutes' to look after generation and delivery of Contents over 50 Channels shall be engaged.

In order to ensure that live content is generated regularly, three Teaching Ends for a channel shall be created to support a channel for content generation, their by about 150 Teaching Ends for generating content for 50 channels are proposed to be created. Further, after the delivery of a subject is completed, the same set or different set of Teaching Ends shall support generation of content for new Subjects.

Support for content generation shall be taken from IITs, NITs, Central Universities, NITTTR, IIMs, IISc, CEC & its Media Centres, IGNOU & other Distance Learning Institutes, Agricultural Universities, Medical Institutions, and other Institutions may be associated with MHRD directly or with sister departments / ministries of Gol., experts involved from scientific establishment, Defense and CSIR Labs, Eminent/Distinguished experts, etc shall also be involved.



## Heads of Central Institutes inducted as Co-opt Members, DTH Committee

S.N	Central Institutions	Head Co-opted as Member DTH, Committee	Mailing Address
1	IITs,	Prof. R.K. Shevgaonkar, Director, IIT Delhi	Prof R.K.Shevgaonkar Director Indian Institute of Technology (IIT) Hauz Khas, NEW DELHI - 110016
2	NITs,	Prof. Sandeep Sancheti, Director NIT Delhi	Prof. Sandeep Sancheti, Director National Institute of Technology – Delhi Integrated Institute of Technology (Campus) Sector – 9 Near Dwarka District Court Dwarka, Delhi – 110077
3	Central Universities A	Prof. S.K. Sopory, VC, JNU, New Delhi.	Prof. S. K. Sopory Vice Chancellor Jawaharlal Nehru University New Mehrauli Road, NEW DELHI-110067
4	Central Universities B	Prof. Dinesh Singh, VC, Delhi University	Prof. Dinesh Singh Vice Chancellor University of Delhi
5	NITTTR,	Prof. Mohan, Director, NITTTR, Chennai.	Dr. S. Mohan, Director, NITTTR, Chennai - 600 013
6	IIMs,	Prof Pankaj Chandra, Director, Bangalore.	Pankaj Chandra Director Indian Institute of Management Bannerghatta Road, Bangalore - 560 076.
7	IISc,	Prof P. Balaram, Director, IISc.	P Balaram Director Indian Institute of Science, Bengaluru 560 012.
8	CEC & its Media Centres,	Dr. T.R. Kem, Director, CEC.	Dr. Tilak R Ken Director Consortium for Educational Communication I.U.A.C. Campus, Aruna Asaf Ali Marg, New Delhi – 110 067.
9	IGNOU,	Prof Gopinath Pradhan , VC, IGNOU	Prof Gopinath Pradhan Vice-Chancellor Indira Gandhi National Open University, IGNOU Complex, Maidan Garhi, New Delhi

10	Agricultural Universities,	Punjab Agricultural university & Tamil Naidu Agricultural University	(a) Dr Baldev Singh Dhillon Vice Chancellor, Punjab Agricultural University, Ludhiana -141004, India
11			(b) <a href="#">Prof. K. Ramasamy</a> Vice Chancellor Tamil Nadu Agricultural University Coimbatore-641003 India
12	Medical Institutions,	Prof Ramesh C. Deka, Director, AIIMS, New Delhi	Professor Ramesh C. Deka Director & CEO AIIMS, Ansari Nagar , New Delhi-110029
13	Academic Staff Training Colleges	ASC University of Mysore	(a)Dr.G.Venkatesh Kumar Director UGC-Academic Staff College, University of Mysore, Manasagangotri, Mysore. Karnataka
14		ASC Bharti Desam University, Truchiralalla	(b)Dr. K. Meena Vice-Chancellor Bharathidasan University Palkalaiperur, Tiruchirappalli Tamil Nadu, PIN: 620024
15	Other Institutions		Prof. Aparajita Ojha Director IIITDMJ Dumna Airport Road, P.O.: Khamaria, Jabalpur - 482 005, Madhya Pradesh.
16.	Sanskrit. Studies		Prof. Radhavallabh Tripathi, Vice Chancellor, Rashtriya Sanskrit Sansthan New Delhi.

**Item No.6****Re-constitution of the Standing Committee of NMEICT**

As per the Minutes of the 24<sup>th</sup> meeting of the Project Approval Board held on 04/10/2012, one of the observation of PAB was

“Chairman, PAB was emphatic that the Standing Committee should provide their recommendations in clear terms and spell out details on deliverables, time-frame and cost breakup, while recommending new proposals. Chairman, PAB also stressed that the composition of the Standing Committee should be broad-based while reviewing and recommending the new proposals. There should be broad guidelines to be approved by PAB for constituting Standing Committee in its next meeting so that there is more transparency in the system”.

Total 15 numbers of meetings of the Standing Committee have been held between the period April, 2011 to March, 2012, out of total 57 Members in the Standing Committee, only 24 members have attended meetings. Further, many of the Members have attended very few meetings. Accordingly, a letter was sent to members of Standing Committee to attend meetings of SC regularly.

Now in last PAB meeting, Chairman, PAB has desired that broad guideline to be approved by PAB for constituting Standing Committee in its next meeting so that there is more transparency in the system.

The Status of Attendance of the Standing Committee Members from April, 2011 to March, 2012 is placed in the next page.

**TABLE**  
**AGENDA FOR 25<sup>th</sup> MEETING OF PROJECT APPROVAL BOARD OF NATIONAL**  
**MISSION ON EDUCATION THROUGH INFORMATION AND COMMUNICATION**  
**TECHNOLOGY**

**Table Agenda Item No.1**

**List of sanctioned projects where progress is slow**

Chairman, in 24<sup>th</sup> meeting of PAB emphasized that in the next meeting, PAB should be provided with the list of such institutions to which project was sanctioned and the progress is slow. Those projects should be highlighted and effort should be made to complete the project. He further emphasized upon the appropriate use of funds which the Government of India is sanctioning for the projects.

The list of sanctioned projects where progress is slow is attached for information of PAB.

**MINUTES OF THE 24<sup>th</sup> MEETING OF PROJECT APPROVAL BOARD OF NATIONAL MISSION ON EDUCATION THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY (NMEICT) HELD ON 4<sup>TH</sup> OCTOBER 2012 AT 4.00 P.M. IN CONFERENCE ROOM (FIRST FLOOR), CSL LIBRARY BUILDING, SHASTRI BHAVAN, DR.RAJENDRA PRASAD ROAD, NEW DELHI.**

The 24<sup>th</sup> Meeting of the Empowered Committee of Experts (Project Approval Board) (PAB) of National Mission on Education through Information and Communication Technology (NMEICT) was held on 04<sup>th</sup> October, 2012 at 4.00 p.m. in Conference Room, Central Secretariat Library (CSL) Building, Shastri Bhawan, New Delhi under the Chairmanship of Secretary, Department of Higher Education, Ministry of HRD.

The list of participants is at **Annexure**.

Additional Secretary (TEL), Department of Higher Education, Ministry of HRD & Mission Director (NMEICT) welcomed all the participants. Thereafter agenda items were discussed and following decisions were taken:

**Item No.1**

**Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board**

Additional Secretary (TEL) and Mission Director (NMEICT) & Member Secretary, PAB, briefed the members and since no suggestions or amendments on the Minutes of the 23<sup>rd</sup> Meeting of the PAB were received, the Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board held on 28<sup>th</sup> February, 2012 were confirmed.

**Item No.2**

**Action Taken Report" on the Minutes of the 23<sup>rd</sup> Meeting of the PAB**

Additional Secretary (TEL) and Mission Director (NMEICT) & Member Secretary requested all the members to give their observation and comments on the "Action Taken Report" on the Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board held on 28<sup>th</sup>

February, 2012. Shri R.P. Agrawal drew the attention towards popularising NMEICT in general and NPTEL in particular and emphasised the need to make available NPTEL material to students from as many sources as possible. Thereafter the said "Action Taken Report" was noted.

### **Item No.3**

#### **Approval of Projects recommended by the Standing Committee**

- 3.1. E-content generation in 17 subjects in Electronics and Communication using Learning-by-doing (or 'butterfly') model by Prof. Sandhya Kode and Prof. Kannan Srinathan, IIIT Hyderabad.**

The item was deferred for the next meeting.

- 3.2. E-content generation for PG Programme in Environmental Science Management", PI: Dr. Suresh Jain, Inst: TERI University**

The item was deferred for the next meeting.

- 3.3. RTP Based Wireless H.264 Scalable Video Streaming for High Speed E-content Delivery over WLAN, PI: Prof. Aditya K. Jagannatham  
Inst: IIT Kanpur, Control No.ACO29031212526**

AS (TEL) & mission Director briefed the PAB about the project and mentioned that codecs for fixed bit rate streaming may not suit plethora of devices having different bandwidth. Hence, a codec which could adjust the bit rate of the stream dynamically, as per requirement of the access device would give better performance. With this in mind, PAB accepted recommendations of the Standing Committee and approved the project for an estimated amount of Rs. 15 lacs.

**3.4. Developing suitable Pedagogical methods for various classes, Intellectual Calibers and Research in e-learning, PI: Prof. Anup K Ray, Anchor Institution: IIT Kharagpur, Control No.: ARE 04061212597**

The representative from IIT Kharagpur made a detailed presentation on the Project. As the PAB raised few issues and they need to be addressed by the PI, the item was deferred for the next meeting by the PAB.

**3.5. NPTEL, PI: Mangala Sunder, Inst: Coordinated by IITM**

Criticality had been shown by the IIT madras regarding lac of funds for procuring studio equipments under NPTEL. PAB was informed that Rs. 10 crore out of the balance Rs. 19 crore had been released in September, 2012.

This was noted by the PAB.

**3.6. Title: Talk to a Teacher (also known as Teachers empowerment, students empowerment, and integration of tools for empowerment – synchronous delivery) - Phase 2, PI: Kannan Moudgalya, D. B. Phatak and Somnath Sengupta Inst.: IIT Bombay and IIT Kharagpur**

Prof. D.B. Phatak and Prof. Kannan Moudgalya from IIT Bombay made a detailed presentation on the "Talk to a Teacher Project". PAB was apprized that "Talk to a Teacher" is a massive programme, involving training of 1,50,000 teachers and the establishment of Remote Centers and Hubs. Fifteen (15) training programs for 10,000 teachers each will be conducted under the project and 1,50,000 teachers will be trained in 3 years.

PAB deliberated on this proposal in detail. Questions were asked about the usage of the infrastructure created under this project (i.e. the Remote Centers and Hubs). It was clarified by the PI that the infrastructure would be available not only to this project but could also be used for other multi-location training programs being conducted by the Ministry of HRD.

After detailed deliberations, PAB approved the proposal subject to the financials being re-verified. Chairman PAB suggested that since it is a large project, Prof. Phatak, the PI of the project, AS (TEL) & Mission Director and FA may go through the proposal in detail and examine whether budget is as per set norms or not. Outcome of the discussions and the figures may be put in the next PAB meeting.

The said meeting was held on 9.10.2012 at 11:00 A.M. in the Ministry. The minutes of the meeting with FA as well as the revised proposal is attached, which arrives at a total financial outlay of Rs. 192 crore for a 3 year project period wherein 500 remote centres, 10 nodal centres apart from the central hub would get established and 1,50,000 technical teachers would get trained for 10 working days each. The centres would be available for other institutions trying to offer teacher training programmes in other disciplines, following the methodology of 10,000 teachers training programme developed by IIT Bombay under NMEICT. This outlay includes Rs. 11.57 crore for activities related to Spoken Tutorials wherein 500 original tutorials and 5000 dubbed tutorials would be created and 1,50,000 students would undergo training through self workshops on any topic of their choice available under Spoken Tutorials.

- 3.7. Title: E-Resources for Geo-Informatics Applications, Education and Training, PI: Head, CSRE, IIT Bombay with several Co-PIs, Inst: IIT Bombay representing 12 institutions, Control no: HE-11081011220**

The item was deferred for the next meeting.

#### **Item No.4**

**Request for extending VPNoBB to Study Centers of Dr. B. R. Ambedkar Open University, Hyderabad**

Additional Secretary (TEL) & Mission Director (NMEICT) and Member Secretary informed that the kind of requests for extending VPNoBB to Study Centers of Dr. B.R. Ambedkar Open University, Hyderabad had been coming from all Open Universities. He mentioned that we are committed to provide connectivity upto 10 mbps to all the



Colleges. However, Study Centers are not covered under the definition of college. He invited comments from all the participants on this issue of providing extension to the Open Universities.

Shri R. P. Agrawal said that in case of certain Universities there are more than 8,000 Study Centers and in case a decision is taken to provide connectivity to them, it should be at subsidized rates.

While Regional Centers of state open universities are very few in numbers, one of the members opined that Study Centers are functioning on the line of franchise and not yielding satisfactory results.

After deliberation, it was decided that the Regional Centres be considered for providing connectivity and in the first phase upto 100 Study Centres with student enrolment of 5000 or more of state open universities should be considered. It was suggested that we should conduct a study and based on its report further decision to provide connectivity may be taken.

#### **Item No.5**

##### **Issues related with BSNL/MTNL**

AS (TEL) informed that he has been told that out of 32000 colleges in India, 8000 or 9000 colleges do not have computers. He suggested that such colleges should be given one Aakash each with one VPNoBB connectivity. BSNL intimated that all such institutions with no computer are non-technical colleges. One of the PAB members suggested that UGC should write to universities that one of the conditions for affiliation to colleges should include proper computer lab in each college. PAB after detailed deliberation decided that to sensitize such colleges, initially one Aakash with one connection should be given and if the institutes start making better use of it, then 5 more Aakash tablets can be given and if these are also effectively used, further 5 more Aakash tablets shall be offered to such colleges. Thereafter BSNL was asked to give report of connectivity to colleges and utilization of VPN bandwidth. BSNL intimated that mostly VPN is being used for their internal communication. Some universities like JNTU are sending live information. BSNL further intimated that once LAN is placed in the university then further analysis on its usage is possible, but individually it is not possible

to monitor individual traffic of the colleges. PAB suggested that 174 universities affiliating the colleges should be asked to improve the utilization of VPN connectivity. It was told that Mumbai University has started utilising connectivity with 600 affiliated colleges and at the same time some 5-6 universities are also having better utilisation on connectivity. Thereafter, BSNL/MTNL appraised the connectivity status of university/colleges to PAB.

It was agreed that colleges not having any computer should be provided Aakash tablet with at least one broadband connectivity.

#### **Item No.6**

**Status of some of the projects already awarded :**

**This item was placed in the 23<sup>rd</sup> PAB and it was deferred for the next meeting.**

#### **6.1 Pilot project namely, Content Creation (Non-technical) e-content Creation in the areas of Economics, Mathematics, Commerce, History, Zoology and Botany, University of Delhi**

The members were informed that Pilot project namely, Content Creation (non-technical) e-content, in the areas of Economics, Mathematics, Commerce, History, Zoology and Botany was awarded to University of Delhi. For this project an amount of Rs.1.00 Crore was also released to University of Delhi vide sanction letter dated 31.3.2009. The Institute of Life Long Learning (ILLL) was earlier executing the project on behalf of Delhi University.

Since Institute of Life Long Learning (ILLL) has not completed the project, MHRD has written to VC, Delhi University to refund the money but the same has not been responded to as yet.

The above was noted by the PAB.

#### **6.2. Projects awarded to IIM-Ahmedabad**

The following two projects were awarded to IIM-Ahmedabad and the status is given below:

**6.2.1. Proof of Concept Exercise for Better Planning of e-learning Programme – IIM- Ahmadabad**

**6.2.2. Awareness Building and Publicity Strategy Formulation**

AS(TEL) apprised the PAB that this project had been completed, however, the expenditure incurred was more than the amount released as the first installment (Rs. 5 lac). IIM Ahmedabad, instead of asking for the 2<sup>nd</sup> installment of the approved funds, adjusted the expenditure (another Rs. 5 lac) from the funds released for Awareness building and publicity strategy formulation project. AS(TEL) also mentioned that IIM Ahmedabad was not inclined to move ahead on this project without a provision of Institute overhead. Ultimately, the project was taken over by the Mission Secretariat and IIM Ahmedabad was asked to refund the money released to them for this project. They returned the money after adjusting the balance expenditure incurred on the first project, as mentioned above.

The above was noted by the PAB.

**6.3. Content Generation for Undergraduate Courses In Agricultural Entomology –CSK Himachal Pradesh**

The PAB members were informed that CSK, Himachal Pradesh has, through a recent Fax, communicated to the Chairman, PAB that they will now complete the project in time.

**Item No.7**

**Future Roadmap of NMEICT - Continuation in XII Plan Period**

AS (TEL) and Mission Director (NMEICT) apprised the PAB that in the Apex Committee meeting of NMEICT, the Advisor (Planning Commission) had informed that the Mission will continue in the XII Plan also.

The above was noted by the PAB.

**Item No.8**

**Strategy for Popularization of NMEICT**

AS (TEL) and Mission Director (NMEICT) informed the members that this issue had been discussed with Chairman PAB and it is proposed to discuss with UNESCO if they would like to participate in the process of popularizing NMEICT. PAB members felt that rather than have just a Logo competition, it would be best to have a total holistic promotion and advocacy campaign for NMEICT

Additional Secretary (TEL) & Mission Director (NMEICT) assured the members that the Mission will act on these directions and will move ahead.

**Item No.9**

**Approval for sitting fee to Members of DTH Committee**

It was apprized that Prof. S.V. Raghavan, Scientific Secretary, Office of the Principal Scientific Adviser to the Government of India chairs the DTH Committee constituted by the PAB regularly.

The DTH Committee is a Committee of Domain Experts, at par with Standing Committee of NMEICT. Standing Committee members are paid a sitting fee of Rs.1000/- per meeting. The Education Secretary (HE) in the capacity as PAB Chairman has kindly approved a proposal for payment of Rs.1000/- as sitting fee to the Members of the DTH Committee and DTH Expert Committee also for each of the meetings in the past. Ratification of this decision of Chairman, PAB was sought.

The PAB ratified the decision for payment of Rs.1000/- as sitting fee to the Members of the DTH Committee and DTH Expert Committee for each of the meetings held in the past and approves payment of sitting fee of Rs.1000/- for each of the subsequent meetings in future also.

**Item No.10**

### **Virtual Lab, IIT Delhi - Approval of extension upto 31<sup>st</sup> March, 2013**

AS (TEL) and Mission Director (NMEICT) informed the PAB that IIT Delhi as the coordinating institute for the Virtual Labs project had put in a request for extension of the project up to March 31<sup>st</sup> 2013. Currently the project is set to finish on 31<sup>st</sup> December 2012. Secretary (HE) and Chairman PAB said this was an important project and its usage must be encouraged as it was an important project.

The above was noted by the PAB and the Virtual Labs project was granted an extension till March 31<sup>st</sup>, 2013 subject to PRSG recommendation

### **Item No.11**

#### **Budget Estimates for 2012-13 for TSG/Mission Secretariat of NMEICT**

The PAB members were informed that the Budget proposed on this for the year 2012-13 for the Mission Secretariat is well within the overall ceiling of 1% of the total outlay fixed for the project. It was also informed that funds on this are released to EdCIL on actual expenditure basis.

The PAB approved overall budget expenditure of up to Rs.3.19 crore for the Mission Secretariat for the year 2012-13 as per budget estimates provided.

### **Item No.12**

#### **Representation of Mr. Sushil Prakash, Senior Consultant, NMEICT.**

Additional Secretary (TEL) & Mission Director (NMEICT) and Member Secretary informed the members that at present Senior Consults in NMEICT are paid a Consultancy fee of Rs.75,000/- p.m. and the pension amount received by two Senior Consultants is deducted from their Consultancy Fee. Further one of the Senior Consultant (among the two) working under NMEICT namely, Shri Sushil Prakash belongs to 1976 batch of Indian Telecom Services and had worked with the Department of Telecommunications (DOT), Government of India from 16<sup>th</sup> August 1976 to 31<sup>st</sup> March 1991.

Shri Sushil Prakash had also worked with Bank of America from February 1, 1997 to April 3, 2009. Shri Sushil Prakash had last worked with TATA Tele Services Limited from 15.5.2009 to 30.12.2011, wherein for the month of November, 2011, he had drawn net average salary of approximately of Rs.4.5 Lakhs per month.

Presently, from Government of India, Mr. Sushil Prakash is drawing a total of Rs. 11,222/- p.m. as pension and DA on pension. His Last Pay drawn plus DA admissible on last pay drawn is only Rs.7000/- p.m. (for having served Govt., of India from 16<sup>th</sup> August 1976 to 31<sup>st</sup> March 1991). Thus as per norms Mr Sushil Prakash can be offered contractual appointment on a remuneration of Rs.75,000/- p.m. subject to the condition that the remuneration and pension plus DA admissible on pension should not exceed his last pay drawn plus DA admissible on last pay drawn. Thus the admissible remuneration of Mr Sushil Prakash, Senior Consultant, NMEICT **results to be nil rather negative.**

Mr. Sushil Prakash has joined NMEICT w.e.f. January 2, 2012.

The anomaly caused by linking pension with the Consultancy Fee was deliberated in depth by the members. The PAB recommends the pension being presently deducted from the Consultancy Fee of all the Consultants be delinked from the issue of payment of their Consultancy Fee, from the date of their joining NMEICT and the pension amount need not be deducted from the Consultancy Fee of the Consultants, in NMEICT.

This PAB recommends to EdCIL for their Board's approval on above, since all the Consultants have been recruited through EdCIL.

### **Item No.13**

#### **Consideration of Sitting Fee to Members of Project Reviewing and Supervising Group (PRSG) under NMEICT**

After deliberations, PAB approved payment of sitting fee of Rs. 1000/- to Members of Project Reviewing and Supervising Group (PRSG) under NMEICT for their participation in meetings, at par with the sitting fee of Standing Committee members.

#### **Item No.14**

##### **Space for DTH Up linking and NMEICT Office at JNU**

Additional Secretary (TEL) & Mission Director (NMEICT) and Member Secretary apprised the members that the MHRD has been allocated two satellite transponders by ISRO, and we do not have space, to house DTH teleport and the NME-ICT Mission Secretariat office. In this regard Education Secretary (HE) MHRD on June 1, 2012, wrote a letter to VC, JNU and subsequently had a meeting with him. Further MHRD team headed by Additional Secretary [TEL] visited JNU campus to look for a suitable place.

The MHRD team in consultation with designated JNU Officials, and based on technical and other criteria, selected a building of SCRS / School of Information Technology, presently being built by the JNU in its Campus. The building has been planned to accommodate ground plus three floors including a basement. The building has plinth area of about 2000 sm. It was decided that the three floors (First, second and third floor) in the building with each having plinth area of 2000 square meters can be made available to the MHRD, for a mutually agreed period, on payment basis.

The Issue was reviewed by the DTH Committee, during its 7<sup>th</sup> meeting held on September 26, 2012.

The PAB based on the DTH Committee recommendations, approved a sanction of Rs.13.00 Crores to be paid to JNU for civil constructions of three floors and further Rs.6.5 Crores (on account of AC, Electricity etc) to be paid on completion of Civil work. The constructed three floors shall accommodate DTH Activities and NMEICT office space for a period of 5+5 years period, which can further be renewed on mutual consent basis. The PAB recommended that a detailed financial proposal on this be sought from JNU and terms and conditions of MOU be finalised mutually.

The PAB further suggested that the JNU may also be requested to take a leading role in the management and content generation of DTH channels for which the PAB on the recommendations of DTH Committee has agreed to set up to 10 Teaching Ends at different Schools in JNU and shall also be provided recurring and Non-Recurring financial and technical assistance for establishing Education Multimedia Centres and

Digital production set up. The JNU in turn should provide all the educational content produced from these facilities for DTH and NMEICT use. However a detailed project proposal shall be prepared by a joint working group of experts on this from JNU and NMEICT as per the terms and conditions of the MoU to be signed between JNU and MHRD.

PAB approved the agenda item.

**Item No.15**

**Revision of Consultancy Fees on Contract Renewal of NME-ICT Consultants.**

Additional Secretary (TEL) & Mission Director (NMEICT) and Member Secretary informed the members that presently, all levels of NMEICT consultants are getting a fixed and consolidated Consultancy Fee (with all inclusive), which is decided at the time of initial engagement of these people and it is continued at the same rate, on their contract renewal. All Senior consultants with the NMEICT are presently on renewed contract, at the same rate of consulting fees, as fixed on their initial engagement. AS(TEL) apprised the members that in case of contractual appointments under SSA, Mid Day Meal, NLMA and other schemes under MHRD, the Consultants are given consultancy Fee in a 'Range', and therefore annual raise is possible, while under NMEICT; the Senior Consultants are having fixed consultancy Fee.

The matter was deliberated in depth and the PAB recommended that Senior Consultants working in NMEICT be provided enhancement in their Consultancy Fee, based on their performance review as under, starting from their last contract renewal, i.e., April 1, 2012

S.No.	Category	Present Consolidated Fee	Proposed Consolidated Fee
1	Senior Consultant	Up to Rs.75000/-	Rs.60,000 - 90,000

This PAB recommends to EdCIL for their Board approval on above, since all the Senior Consultants have been recruited through EdCIL.

**Item No.16**



### **1 Gbps connection for Shastri Bhawan, New Delhi**

In view of higher requirement of bandwidth for telepresence kind of video conferencing with the Universities, it was informed to PAB that a request shall be made to NIC to enhance connectivity to 1 Gbps for Shastri Bhawan. In case NIC will not be able provide this facility, the connectivity shall then be funded through NMEICT. PAB approved providing of 1 Gbps connection for Shastri Bhawan out of the funds of NMEICT, in case NIC / NKN did not provide this bandwidth.

However, Shri R.S. Mani from NIC who was present in the meeting assured the members that within a week's time, the 1 Gbps connections for Shastri Bhawan, New Delhi will be provided.

### **Other observations of PAB**

- Chairman, PAB was emphatic that the Standing Committee should provide their recommendations in clear terms and spell out details on deliverables, time-frame and cost breakup, while recommending new proposals. Chairman, PAB also stressed that the composition of the Standing Committee should be broad-based while reviewing and recommending the new proposals. There should be broad guidelines to be approved by PAB for constituting Standing Committee in its next meeting so that there is more transparency in the system.
- Mr. R.P. Agrawal mentioned that lot of good work has been physically done in projects under NMEICT, which should reach the students and academic faculty. He further informed that NPTEL content is being accessed by only about 700-800 engineering colleges out of 4000 colleges/institutions in the country. Strong need was felt on ensuring that the benefits of this whole exercise of providing connectivity & content should reach to a large number of students/aspirants of colleges/institutions as much as possible. It was further stressed upon that the contents should be made available to the students and academic faculty in the form of DVDs/ VCDs at the cost of raw DVD/VCD, packaging & its transfer charges and with some incidentals only and the students and teachers should be

informed through announcements/advertisements where such material shall be available and at what cost.

- Chairman, PAB stressed that there is need to publicize the material through the electronic media in a professional manner. It was also decided to explore the possibility of producing an advertisement in the form of advertisement/ movie, etc through UNESCO, similar to what is being done for SSA by UNICEF.
- Chairman, PAB further stressed that in the agenda certain things like deliverables, time frame; especially break up of the cost etc should come up front. Screening (Standing) Committee should clearly furnish its recommendations to PAB. Recommendations should be spelt out clearly by the Standing Committee.

AS(TEL) & Mission Director told that on 9.10.2012, format can also be seen and prescribed.

- Chairman, PAB instructed that in future agenda papers should be circulated to members at least 5 days in advance.
- Chairman, PAB emphasized that in the next meeting, PAB should be provided with the list of such institutions to which project was sanctioned and the progress is slow. Those projects should be highlighted and effort should be made to complete the project. He further emphasized upon the appropriate use of funds which the Government of India is sanctioning for the projects
- Director, IITM through Skype briefed the Members that one of the suggestions made by the Empowered Committee for implementing the 'Kakodkar Committee Report' is to carry out the programme for Engineering College Teachers by enthusing students & teachers to obtain M Tech Degree through Live & Online Courses conducted by IITs. Typically between 4 to 7 PM lectures will be delivered through ICT mode and the registered students/teachers during summer vacations can visit IITs for the laboratory part and can latter take up the exams for successful completion of the course.

- On query of proper utilization of funds and proper CAG audit, Additional Secretary (TEL) & Mission Director (NMEICT) informed that some of the private institutions had initially got 1<sup>st</sup> or 2<sup>nd</sup> installment of the funds directly, however, their 3<sup>rd</sup> installment and beyond have been routed through respective IIT so as to ensure proper usage and audit of funds.
- It was felt that on repeated request from institutions, NMEICT should provide upto 5% overhead charges on the project sanctioned to such Institutions in the 12<sup>th</sup> Plans

The meeting ended with a Vote of Thanks to the Chair.

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## Minutes of the meeting

To carry out a detailed evaluation of the proposal and funding requirements for the Phase II proposal for Talk to a Teacher Program from IIT Bombay and IIT Kharagpur, a meeting was held on 9th October 2012 in the chambers of Shri N K Sinha, Additional Secretary and Mission Director NME-ICT. Mrs Mittal, JS and FA, along with Shri Alex Thomas, and Shri Pradeep Varma, attended the meeting. Prof Deepak B Phatak was available to offer explanations and clarifications on various aspects of the proposal.

At the outset, Shri Sinha explained the general situation prevailing in the country as regards training of teachers. He observed that the traditional mechanisms of training was through conducting two-week training workshops for 35 teachers at a time. This has been done over the years through AICTE and ISTE workshops. This approach will not achieve the training requirement of teachers in higher education, which already number more than 8,00,00. In the phase I of this project, IIT Bombay had proposed to use ICT to scale up using "Train 1000 Teachers" scheme, to train over 12000 teachers by conducting 12 workshops, each for 1000 teachers. They have successfully completed the project, and have exceeded the delivery targets. IIT Bombay has now proposed to further scale up this training program using ICT, to train 10,000 teachers at a time. The proposed project addresses the urgent need to get faculty trained in large numbers, but it is necessary to examine the methodology proposed as well as the details of funding required.

Some general questions were first raised. These related to the large funding request for the project, and whether such large funds are justified? Whether funds would be available? If allocated to this project, whether other important activities will suffer? Should this project not be examined by a committee of experts?

Shri Sinha observed that Rs 200 Crores were already allocated in 11th plan for teachers training, out of which only Rs 80 Crores were spent. He mentioned that the 12<sup>th</sup> plan is going to establish an independent mission for training teachers at all levels for which a very large provision is expected. This training activity has adequate provision.

He observed that the expenditure for this project will be made from the funds already earmarked for this activity. In the first year, only 30% of the budget is required to be released. Other activities will not suffer at all.

As regards the large outlay required, he observed that the training programs of AICTE typically cost Rs 17000 per teacher for a 2-week workshop. The cost for training 1,50,000 teachers would work out to Rs. 255 Crores. He further mentioned that the conventional method of training 35 teachers per workshop would require more than 4200 workshops to be conducted. This is clearly an impossible task and cannot be achieved through conventional means. He mentioned that the use of ICT will alone enable the target to be achieved. He observed that in his opinion, the cost per teacher should be much less due to use of ICT, and that this aspect should be critically examined in the proposal submitted by IIT Bombay.

About the evaluation by external experts, he observed that there is no other group in India, and perhaps anywhere in the world, which has ever attempted this scale for training teachers in the higher education, so no other external expert can be found, but that this issue of external evaluation should also be raised with the PI.

At this stage, Prof Phatak was requested to explain the details of the project proposal, and to explain each and every component of the estimated cost. The key points of his presentation, questions raised by the committee, and clarifications given are listed below:

Prof Phatak explained that IIT Bombay had started its distance education program in 2000, using VSAT to connect to multiple institutions. Starting with 4 colleges, the connectivity was expanded to 15 Institutes, for delivering lectures in a two-way interactive fashion. In the year 2007, TIFAC had supported a project under which training workshops were conducted. Using this infrastructure, Prof Kannan Moudgalya had also transmitted live lectures of regular IIT courses. Phase I of the present project was built on this experience, and had proposed to conduct 2 week workshops for 1000 teachers at a time from 30 to 50 remote centers. As desired by NME-ICT, a pilot was first conducted, and feedback was obtained from the participants as also from the PRSG. After the main project was approved, 10 workshops in different core engineering subjects were conducted, training over 11,000 teachers. In these workshops, interactive lectures were delivered from IIT Bombay, whereas laboratory and tutorial sessions were conducted at remote centers. He mentioned that apart from the synchronous lectures delivered from IIT, asynchronous mechanisms were introduced, similar to those practiced in an earlier scale-up attempt by Prof Ray at IIT Kharagpur. These included discussion sessions at remote centers, and a compulsory team assignment to be submitted by participants in two weeks after the conclusion of the workshop.

IIT Bombay then conducted a pilot mega- workshop to achieve further scale up, attempting to train 10,000 teachers at a time. This workshop on Research methodologies was attended by over 8400 teachers from 168 remote centers. He shared the feedback obtained from the participating teachers, which was excellent. Since the need was to train Lakhs of teachers in higher education, the present proposal is submitted as phase II, to conduct such 15 workshops, to provide training to over 1,50,000 teachers. IIT Kharagpur is a partner Institute in this proposed project.

He also explained the provisions for external evaluation. He mentioned that anonymous feedback is obtained from the participants of each workshop. PRSG meetings critically go through the outcomes and evaluate the feedback. Additionally, it is proposed that ISTE will conduct an independent evaluation of the impact of each workshop, by independently interviewing teachers from sample colleges who attend these workshops, and also some of their students to determine if the teaching levels have improved.

He explained that, based on the experience of the mega-workshop, a need was felt to create a hierarchical structure in the form of 10 Nodal Centers to support about 500 Remote Centers. IIT Bombay and IIT Kharagpur would be the Hub Institutes conducting these training workshops, Under them, it is proposed to create 10 Nodal Centers, each of

which will supervise the conduct of 30 to 50 Remote Centres in its region. These Nodal Centers would be equipped to conduct coordinators training for Remote Centres under their jurisdiction. Remote Centres also need to be provided with some minimal equipment to ensure a high quality of audio-visual interaction, and to permit access to the open source contents from a server located in their premises. The budget for the proposal has been prepared keeping in mind all these requirements.

**Questions and clarifications:**

Several questions were raised by FA and by Shri Thomas on the finer details of the project, and the budget thereof. These questions, the clarifications offered by Prof Phatak, and the final directions given to him are recorded below:

1. Since workshops are planned to be conducted during vacation period, will not the infrastructure, proposed to be established at Remote Centers and Nodal Centers remain idle during regular semesters?

Clarification:

No. The infrastructure at Remote centers will be used for the regular teaching for local students during semesters, wherein the contents on the servers will be accessed and used by the students studying these subjects. The Nodal centers will be conducting coordinators' workshops during regular semesters, for which the infrastructure there will be used through the year. It is also envisaged that several week-end workshops will be conducted for the benefit of faculty and students during the semester. Thus overall, the infrastructure at these centers will be in regular use during the entire academic year.

It is further envisaged that the Nodal centers will also start conducting such workshops. In fact, the Remote Centers themselves should become local 'hubs' providing the infrastructure to be used for training teachers and students of other higher education colleges in their cities, covering arts, commerce and science subjects.

2. Are all the centers government Institutions?

Clarification:

No. The Remote centers are engineering colleges including both private and government institutions. The Nodal Centers are proposed to be those of such centers which have a higher reputation for quality education and some research. These are currently identified as NITs and some fully funded colleges. There are some good Institutes which are in private sector which may be considered.

Direction: Substantial infrastructure is being created at Nodal Centers. The Government funding for this part should not go to private Institutions. Nodal centers to be established must be Institutes fully funded by the Government.

3. Why are the Remote Centers not uniformly spread geographically across the country.

Clarification:

Invitation to become remote centers were sent to all engineering colleges. Those willing to participate have been evaluated and selected. The concentration of remote centers in the southern and western part is also due to much larger number of colleges in these regions. Recently, a newspaper advertisement was released in all national news papers, and many more colleges across the country have applied. These now cover states of Rajasthan, Punjab, Haryana, Uttar Pradesh, MP and Chattisgarh. Since a total of 500 remote centers are proposed, the new ones will be established in regions which have very few centers now.

Direction: It must be ensured that remote centers are spread across the entire geography of the country and that all regions are properly covered.

4. Explain the details of funds needed for hub Institutes, Nodal centers and Remote Centers.

Explanation: The equipment needed at each of these places is described along with the estimated item-wis

e budget. IIT Bombay's equipment budget is less because part of the audio-video equipment has already been procured for phase I which will continue to be used for Phase II.

5. As observed by Shri Sinha, the cost per teacher of conducting workshops using ICT should be less as compared with the costs for conventional workshops. Explain the budget estimates per workshop in details.

Explanation: A spreadsheet showing estimates for a workshop involving 172 RCs was used to determine these costs. This works out to Rs 6500 per teacher per workshop. It may be noted that the cost estimate for phase I was Rs 9500 per teacher per workshop. By increasing the number of centers across the country, the number of participating teachers coming from outstations has been reduced and is estimated at only 20% of the total 10000 participants .

Direction: The fixed cost portion should be calculated for 200 Remote centres which are expected to participate in each workshop rather than 172. Further, the averaging of food cost for outstation and local participants is not correct. It should be calculated separately as per standard norms. This appears to reduce the cost per participant to slightly less than Rs 6,300. The workshop budget should accordingly be reduced.

Also attempt should be made to further reduce this variable cost wherever possible.

6. The contingency provision appears to be large. What is the reason?

**Explanation:** When running an operation of this magnitude, unexpected contingencies arise. For example, a call centre had to be established at a short notice while running the mega workshop, because the number of queries from participants far exceeded the estimates.

**Direction:** Contingency estimate should be pegged at maximum 3% of the corresponding budget, where the given estimates exceed this limit . In any case, expenditure should be done from approved heads wherever possible.

#### 7. Explain the high salary budget at Hub Centers

**Explanation:** The magnitude of this operation is such that a large number of personnel at various levels are required. Salaries for people at different levels, their qualifications and experience are based on those determined by a high power committee at IIT Bombay for temporary staff. The norms are commensurate with the sixth pay commission payouts. Appointments are made after due advertisement and selection process for 1 to 3 years on consolidated salary with a fixed increment.

**Direction:** This process is in order. However for temporary staff appointed on consolidated salary, there cannot be any fixed increments. It is suggested that the appointments should be made only for one year. They may be reappointed based on a performance review. The new salary fixed for next year should be based on the performance of the staff, and not at any fixed increment value.

**In conclusion,** the project appears to meet a strategic training requirement of the nation. The budget requested appears justified, but changes as directed should be made and the project budget should be appropriately reduced.





## **PART-I Information relating to department/institute**

1. Name of Institute with complete address:  
Indian Institute of Technology, Bombay  
Powai, Mumbai 400 076  
Partner Institute: IIT Kharagpur
2. Title of the Research Project: Teachers Empowerment, Students Empowerment, and Integration Tools for Empowerment (Synchronous Delivery), abbreviated as the Talk to a Teacher project (Phase 2)
3. Department/Broad Area:  
Centre for Distance Engineering Education Programme
4. Major areas of research in the Department:  
Synchronous course delivery. Pedagogy. Asynchronous engagement and Blended model of education. Education Technology Tools such as: Audio-Video, Network optimization, Clickers and tablets, Software tools like Moodle and Content Management Systems.
5. Names and Designation of Principal Researchers in the major areas and list of publication during last 5 years based on work done in the Department:  
PI: Prof. Kannan Moudgalya, IIT Bombay  
Co-PIs:  
From IIT Bombay: Prof Deepak Phatak, Prof Sridhar Iyer  
From IIT Kharagpur: Prof Somnath Sengupta  
The resume of the PI and Co-PIs from IIT Bombay have already been submitted to NME-ICT for the previous project (Talk to a Teacher). Resume of Prof Sengupta of IIT Kharagpur will be sent shortly.
6. Is it Inter-disciplinary Project? Yes.
7. Is it Inter-Institutional Project? Yes.
8. Is any Industry/User agency participating? Yes, ISTE is participating
9. Brief of completed and or ongoing research projects supported by MHRD/AICTE in the Department during last 5 years. To be supplied when required.

## **PART-II Information relating to department /institute**

10. Principal Investigator
  - (a) Name: Kannan Moudgalya
  - (b) Designation: Professor of chemical engineering
  - (c) Age: 54
  - (d) Educational qualification: Ph.D

- (e) Experience: More than twenty five years of teaching and research
- (f) Books and papers published: included in the resume of the PI submitted in the first phase of this project.
- (g) Is it a joint project with other Institution?

IIT Kharagpur is the partner Institute. ISTE is the agency recognizing and certifying the teachers participating in the workshops.

- (h) Has an MOU been signed? Yes, IIT Bombay has signed a MOU with ISTE.
- (i) Present commitments of the Principal Investigator
  - i. Teaching: two courses a year
  - ii. Ph.Ds registered under him: Two, in the area of educational technology
  - iii. Sponsored research: The first phase of this project, FOSSEE
  - iv. Consultancy: None
- (j) Other members of the research group to work on the proposed project:
  - i. IIT Bombay:
    - A. Prof. D. B. Phatak
    - B. Prof. Sridhar Iyer
  - ii. IIT Kharagpur: Prof. Somnath Sengupta

## **PART-III About research project**

15. About the research project The main objective is to empowerment of teachers using ICT as an enabler. The proposed approach, mainly through synchronous methodologies, and through spoken tutorials, has been proven and validated through the earlier project. It is proposed to expand the model of conducting training workshops to further scale up the efforts incorporating appropriate asynchronous mechanisms; as also to extend the model to other group of teachers in Higher education.

10,000 Teacher Training Programme:

- (a) Summary of the project: The main deliverables will include conduct of 'Train 10,000 Teachers' Workshops. A total of 15 such workshops will be conducted. 9 of these will be conducted by IIT Bombay, and 6 will be conducted by IIT Kharagpur. Additionally, work on the spoken tutorials will be further expanded and will be integrated with the workshops. The methodology used will be tuned to offer a blended mode of empowerment including both, the synchronous and asynchronous mechanisms.

IIT Bombay will also have the task of coordinating these activities in the country. In particular, it will promote these activities in the country and take on board more suitable institutions as additional Remote Centers, Nodal Centers, and Hubs. IIT Kharagpur will be set up as the first such hub besides IIT Bombay. In addition IIT Bombay will set up 10 Nodal Centers and 500

Remote Centers for this activity. Additional workshops will be conducted for coordinators and technical staff at these centers as and when required.

It is envisaged that 1,50,000 teachers will be empowered in teaching various subjects through this project.

(b) Justification, importance of the project:

This project aims to rejuvenate the teaching community in Indian Higher Education System on a large scale. The importance and justification has already been submitted in the previous project proposal, which has been successfully executed. This project aims to substantially scale up the efforts to reach out to the entire teaching community in the technical higher education.

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

IIT Bombay - Already submitted as part of the earlier project reports IIT Kharagpur - Prof Ray had done pioneering efforts in Distance Education which are well recorded. Over the years, much work has been done by his team in asynchronous methods and Pedagogy. All of which will be used to refine the workshop model. The co-PI from IIT Kharagpur, Prof Somnath Sengupta, is the Dean of Continuing Education

Spoken Tutorial Project:

(a) Summary of the project: Spoken tutorials have been established as an effective instructional methodology. A total of 500 original spoken tutorials and 5,000 dubbed tutorials will be created. A total of 1,50,000 students will be trained. Nodal Centres will be established in about 10 locations to sustain and to spread this activity in all parts of the country.

(b) Justification, importance of the project: This project will help improve IT literacy, improve employment potential of our students. It will also help bridge digital divide. We also propose to set up Nodal Centres that will help sustain and spread this activity.

(c) Details of the work done by the investigators in this area: The PI is successfully carrying out the spoken tutorial development and conducting workshops using the tutorials. About 85% of the students who undergo the workshop pass the post-workshop test. In the last about one year, we have completed about 2,500 workshops, through about 1,000 colleges.

16. Overall Budget (in lakh):

	I Year	II Year	III Year	Total
IITB	5557	3879	3937	13373
IITKgp	1299	1893	2637	5829
Total	6856	5772	6574	19202

Overall budget for two institutes, for three years = Rs. 19202 lakh  
Details of the budget are given in the following pages.

Budget for the 10,000 teacher training programme (in lakh):

	First year		Second year		Third year		Total	
	IITB	IITKgp	IITB	IITKgp	IITB	IITKgp	IITB	IITKgp
Equipment	325	325	50	100	25	50	400	475
Salary	275	125	300	200	300	300	875	625
Consumables	100	50	100	100	100	100	300	250
Nodal centres(10)	750	0	250	0	250	0	1250	0
Remote centres(500)	1600	0	600	0	600	0	2800	0
10K workshops (15)	1887	629	1887	1258	1887	1887	5661	3774
Coordinator W/S (15)	75	25	75	50	75	75	225	150
Publicity/sponsorship	50	50	50	50	50	50	150	150
Travel	50	30	60	50	70	70	180	150
Contingency	100	100	100	100	100	100	300	300
Contingency	100	40	100	60	100	80	300	180
Coord. honorarium	25	25	25	25	25	25	75	75
<b>Total</b>	<b>5237</b>	<b>1299</b>	<b>3497</b>	<b>1893</b>	<b>3482</b>	<b>2637</b>	<b>12216</b>	<b>5829</b>

Total budget = Rs. 18045 lakh

The cost to conduct one 10,000 teacher workshop is Rs. 6.29 crore. The details are given in Table ..

Number of Teachers to be trained:

Year	First	Second	Third	Total
IIT Bombay	30,000	30,000	30,000	90,000
IIT Kharagpur	10,000	20,000	30,000	60,000

25

10 DAY WKS: 200 RCS and 10000 PARTICIPANTS						
A. FIXED COST						
	NO OF RCS	NO OF PERSONS REQD/ PER RC	HONORARIUM	FOR NO OF DAYS	PAYMENT	TOTAL (Rs)
RCC	200	1	13000		LUMPSUM	2600000
WSC	200	1	13000		LUMPSUM	2600000
Teaching Assistants	200	2	700	10	per day	2800000
Technical / Lab Assistants	200	2	500	10	per day	2000000
Network Coord	200	1	500	10	per day	1000000
Support Staff	200	1	500		LUMPSUM	100000
Misc Exp [avg 15000 / RC]	200	-			LUMPSUM	3000000
Instt Exp [10000/RC]	200	-			LUMPSUM	2000000
<b>FIXED COST SUB TOT [A]</b>						<b>1,61,00,000</b>
B. VARIABLE COST						
			Participant number	No of days	Rate (Rs)	TOTAL (Rs)
<b>Local participants</b>						
FOOD (local Participants)			10000	10	250	2,50,00,000
FOOD (RC Team)			1000	10	250	25,00,000
<b>Outstation participants</b>						
ACCOMMODATION			2000	11	350	77,00,000
FOOD (Participants)			2000	11	300	66,00,000
TRAVEL			2000		1000	20,00,000
<b>VARIABLE COST SUB TOT [B]</b>						<b>4,38,00,000</b>
<b>TOTAL A +B</b>						<b>5,99,00,000</b>
Add: workshop Fees to ISTE, CEP, CDEEP						30,00,000
<b>TOTAL COST</b>						<b>6,29,00,000</b>

Table 1: Detailed breakup of expenses for one workshop

Budget for the Spoken Tutorial part (IITB only), in lakh:

Year	First	Second	Third	Total
Equipment	25	25	25	75
Salary	175	200	225	600
Nodal centres (5,7,10)	50	70	100	220
Consumables	30	40	50	120
Contingency	10	12	15	37
Travel	20	25	30	75
Publicity/sponsorship	10	10	10	30
<b>Total</b>	<b>320</b>	<b>382</b>	<b>455</b>	<b>1157</b>

Total budget = Rs. 1157 lakh

Deliverables for the Spoken Tutorial part:

Year	First	Second	Third	Total
No. of original tutorials	100	200	200	500
No. of dubbed tutorials	1,000	2,000	2,000	5,000
No. of students trained	50,000	50,000	50,000	1,50,000

17. Recurring budget of the proposal along with item-wise breakup (in lakh)

	IITB	IITKgp	Total
Salary	1475	625	2100
Consumables	420	250	670
Nodal centres upkeep	350	0	350
Remote centres upkeep	1400	0	1400
10K Workshops	5661	3774	9435
Coordinator W/s	225	150	375
Publicity/sponsorship	180	150	330
Travel	255	150	405
Contingency	337	180	517
Coord. honorarium	75	75	150
<b>Total</b>	<b>10378</b>	<b>5354</b>	<b>15732</b>

18. Detailed breakup of non-recurring items (Rs. lakh)

	IITB	IITKgp	Total
Equipment	475	475	950
Nodal centre establishment	1120	0	1120
Remote centre establishment	1400	0	1400
<b>Total</b>	<b>2995</b>	<b>475</b>	<b>3470</b>

## Summary Sheet

1. Name of the Institution: IIT Bombay
2. Title of the Project:  
Teachers Empowerment, Students Empowerment, and Integration Tools for Empowerment (Synchronous Delivery), abbreviated as the Talk to a Teacher project
3. Name of the Department:  
Dept. of chemical engineering and Dept. of computer science
4. Cost of the Project: Rs. 19780 lakh.
5. Amount released earlier if any: The first phase of the project
6. Utilization position in respect of grants released earlier for various projects (Details to be given project-wise): Funds used and committed.
7. Reasons for unspent balance: All the balance money is already committed.
8. Name of the Principal Investigator responsible for implementation of the Project:  
Prof. Kannan Moudgalya

(NAME & SIGNATURE OF THE PRINCIPAL INVESTIGATOR)

## Certificate from IIT Bombay

Certified

1. that the Principal Investigator is not due to retirement during the currency of this project.
2. that the Principal Investigator is a regular employee of this Institution. However in case he/she proceeds sabbatical/resigns/proceeds VRS etc., the Institute will ensure to replace PI by a compatible academician to ensure that without any break whatsoever, project will be completed within the stipulated period.
3. that it will be ensured that the implementation will be carried out on mission mode with no time or cost over run and we are aware that ministry will neither provide any extension of time nor additional funding.
4. that no overheads will be charges by the Institution for this project and all facilitation including other essential/infrastructure support like air-conditioning etc. will be provided by the Institution.

Seal of the Institution

Signature of Head of the Institution

For Office Use Only

1. Name of the Area:
2. Recommendations:
  - (a) Approved
  - (b) Not approved
  - (c) Deferred Amount (Rs.———— in lakhs)
  - (d) Transferred to area
3. Remarks, if any  
(common for all the 3 schemes)



**ACTION TAKEN REPORT  
ON THE MINUTES OF THE 24<sup>th</sup> MEETING OF PROJECT APPROVAL BOARD OF  
NATIONAL MISSION ON EDUCATION THROUGH INFORMATION AND  
COMMUNICATION TECHNOLOGY (NMEICT) HELD ON 4<sup>TH</sup> OCTOBER 2012**

Item No.	Action Taken
<p><b>Item No.1</b></p> <p><b>Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board</b></p> <p>Additional Secretary (TEL) and Mission Director (NMEICT) &amp; Member Secretary, PAB, briefed the members and since no suggestions or amendments on the Minutes of the 23<sup>rd</sup> Meeting of the PAB were received, the Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board held on 28<sup>th</sup> February, 2012 were confirmed.</p>	-
<p><b>Item No.2</b></p> <p><b>Action Taken Report” on the Minutes of the 23<sup>rd</sup> Meeting of the PAB</b></p> <p>Additional Secretary (TEL) and Mission Director (NMEICT) &amp; Member Secretary requested all the members to give their observation and comments on the “Action Taken Report” on the Minutes of the 23<sup>rd</sup> Meeting of the Project Approval Board held on 28<sup>th</sup> February, 2012. Shri R.P. Agrawal drew the attention towards popularizing NMEICT in general and NPTEL in particular and emphasized the need to make available NPTEL material to students from as many sources as possible. Thereafter the said “Action Taken Report” was noted.</p>	-
<p><b>Item No.3</b></p> <p><b>Approval of Projects recommended by the Standing Committee</b></p> <p><b>3.1. E-content generation in 17 subjects in Electronics and Communication using Learning-by-doing (or ‘butterfly’) model by Prof. Sandhya Kode and Prof. Kannan Srinathan, IIIT Hyderabad.</b></p> <p>The item was deferred for the next meeting.</p> <p><b>3.2. E-content generation for PG Programme in Environmental Science Management”, PI: Dr. Suresh Jain, Inst: TERI University</b></p> <p>The item was deferred for the next meeting.</p>	-  -

<p><b>3.3. RTP Based Wireless H.264 Scalable Video Streaming for High Speed E-content Delivery over WLAN, PI: Prof. Aditya K. Jagannatham Inst: IIT Kanpur, Control No.ACO29031212526</b></p> <p>AS (TEL) &amp; mission Director briefed the PAB about the project and mentioned that codecs for fixed bit rate streaming may not suit plethora of devices having different bandwidth. Hence, a codec which could adjust the bit rate of the stream dynamically, as per requirement of the access device would give better performance. With this in mind, PAB accepted recommendations of the Standing Committee and approved the project for an estimated amount of Rs. 15 lacs.</p>	<p>Under process for release of funds.</p>
<p><b>3.4. Developing suitable Pedagogical methods for various classes, Intellectual Calibers and Research in e-learning, PI: Prof. Anup K Ray, Anchor Institution: IIT Kharagpur, Control No.: ARE 04061212597</b></p> <p>The representative from IIT Kharagpur made a detailed presentation on the Project. As the PAB raised few issues and they need to be addressed by the PI, the item was deferred for the next meeting by the PAB.</p>	<p>-</p>
<p><b>3.5. NPTEL, PI: Mangala Sunder, Inst: Coordinated by IITM</b></p> <p>Criticality had been shown by the IIT madras regarding lac of funds for procuring studio equipments under NPTEL. PAB was informed that Rs. 10 crore out of the balance Rs. 19 crore had been released in September, 2012.</p> <p>This was noted by the PAB.</p>	<p>Released Rs.10 crore.</p>
<p><b>3.6. Title: Talk to a Teacher (also known as Teachers empowerment, students empowerment, and integration of tools for empowerment – synchronous delivery) - Phase 2, PI: Kannan Moudgalya, D. B. Phatak and Somnath Sengupta Inst.: IIT Bombay and IIT Kharagpur</b></p> <p>Prof. D.B. Phatak and Prof. Kannan Moudgalya from IIT Bombay made a detailed presentation on the “Talk to a Teacher Project”. PAB was apprized that “Talk to a Teacher” is a massive programme, involving training of 1,50,000 teachers and the establishment of Remote Centers and Hubs. Fifteen (15) training programs for 10,000 teachers each will be conducted under the project and 1,50,000 teachers will be trained in 3 years.</p> <p>PAB deliberated on this proposal in detail. Questions</p>	<p>-</p>

<p>were asked about the usage of the infrastructure created under this project (i.e. the Remote Centers and Hubs). It was clarified by the PI that the infrastructure would be available not only to this project but could also be used for other multi-location training programs being conducted by the Ministry of HRD.</p> <p>After detailed deliberations, PAB approved the proposal subject to the financials being re-verified. Chairman PAB suggested that since it is a large project, Prof. Phatak, the PI of the project, AS (TEL) &amp; Mission Director and FA may go through the proposal in detail and examine whether budget is as per set norms or not. Outcome of the discussions and the figures may be put in the next PAB meeting.</p> <p>The said meeting was held on 9.10.2012 at 11:00 A.M. in the Ministry. The minutes of the meeting with FA as well as the revised proposal is attached, which arrives at a total financial outlay of Rs. 192 crore for a 3 year project period wherein 500 remote centres, 10 nodal centres apart from the central hub would get established and 1,50,000 technical teachers would get trained for 10 working days each. The centres would be available for other institutions trying to offer teacher training programmes in other disciplines, following the methodology of 10,000 teachers training programme developed by IIT Bombay under NMEICT. This outlay includes Rs. 11.57 crore for activities related to Spoken Tutorials wherein 500 original tutorials and 5000 dubbed tutorials would be created and 1,50,000 students would undergo training through self workshops on any topic of their choice available under Spoken Tutorials.</p>	
<p><b>3.7. Title: E-Resources for Geo-Informatics Applications, Education and Training, PI: Head, CSRE, IIT Bombay with several Co-PIs, Inst: IIT Bombay representing 12 institutions, Control no: HE-11081011220</b></p> <p>The item was deferred for the next meeting.</p>	-
<p><b>Item No.4</b>  <b>Request for extending VPNoBB to Study Centers of Dr. B. R. Ambedkar Open University, Hyderabad</b></p> <p>Additional Secretary (TEL) &amp; Mission Director (NMEICT) and Member Secretary informed that the kind of requests for extending VPNoBB to Study Centers of Dr. B.R. Ambedkar Open University, Hyderabad had been coming from all Open Universities. He mentioned that we are committed to provide connectivity upto 10 mbps to all the Colleges. However, Study Centers are not covered under the definition of college. He invited comments from all the participants on this issue of</p>	-

<p>providing extension to the Open Universities.</p> <p>Shri R. P. Agrawal said that in case of certain Universities there are more than 8,000 Study Centers and in case a decision is taken to provide connectivity to them, it should be at subsidized rates.</p> <p>While Regional Centers of state open universities are very few in numbers, one of the members opinioned that Study Centers are functioning on the line of franchise and not yielding satisfactory results.</p> <p>After deliberation, it was decided that the Regional Centres be considered for providing connectivity and in the first phase upto 100 Study Centres with student enrolment of 5000 or more of state open universities should be considered. It was suggested that we should conduct a study and based on its report further decision to provide connectivity may be taken.</p>	
<p><b>Item No.5</b> <b>Issues related with BSNL/MTNL</b></p> <p>AS (TEL) informed that he has been told that out of 32000 colleges in India, 8000 or 9000 colleges do not have computers. He suggested that such colleges should be given one Aakash each with one VPNoBB connectivity. BSNL intimated that all such institutions with no computer are non-technical colleges. One of the PAB members suggested that UGC should write to universities that one of the conditions for affiliation to colleges should include proper computer lab in each college. PAB after detailed deliberation decided that to sensitize such colleges, initially one Aakash with one connection should be given and if the institutes start making better use of it, then 5 more Aakash tablets can be given and if these are also effectively used, further 5 more Aakash tablets shall be offered to such colleges. Thereafter BSNL was asked to give report of connectivity to colleges and utilization of VPN bandwidth. BSNL intimated that mostly VPN is being used for their internal communication. Some universities like JNTU are sending live information. BSNL further intimated that once LAN is placed in the university then further analysis on its usage is possible, but individually it is not possible to monitor individual traffic of the colleges. PAB suggested that 174 universities affiliating the colleges should be asked to improve the utilization of VPN connectivity. It was told that Mumbai University has started utilizing connectivity with 600 affiliated colleges and at the same time some 5-6 universities are also having better utilization on connectivity. Thereafter, BSNL/MTNL appraised the connectivity status of university/colleges to PAB.</p> <p>It was agreed that colleges not having any computer should be provided Aakash tablet with at least one broadband connectivity.</p>	<p>Under Process.</p>

<p><b>Item No.6</b></p> <p><b>Status of some of the projects already awarded :</b></p> <p><b>This item was placed in the 23<sup>rd</sup> PAB and it was deferred for the next meeting.</b></p> <p><b>6.1 Pilot project namely, Content Creation (Non-technical) e-content Creation in the areas of Economics, Mathematics, Commerce, History, Zoology and Botany, University of Delhi</b></p> <p>The members were informed that Pilot project namely, Content Creation (non-technical) e-content, in the areas of Economics, Mathematics, Commerce, History, Zoology and Botany was awarded to University of Delhi. For this project an amount of Rs.1.00 Crore was also released to University of Delhi vide sanction letter dated 31.3.2009. The Institute of Life Long Learning (ILLL) was earlier executing the project on behalf of Delhi University.</p> <p>Since Institute of Life Long Learning (ILLL) has not completed the project, MHRD has written to VC, Delhi University to refund the money but the same has not been responded to as yet.</p> <p>The above was noted by the PAB.</p>	-
<p><b>6.2. Projects awarded to IIM-Ahmedabad</b></p> <p>The following two projects were awarded to IIM-Ahmedabad and the status is given below:</p> <p><b>6.2.1. Proof of Concept Exercise for Better Planning of e-learning Programme – IIM- Ahmadabad</b></p> <p><b>6.2.2. Awareness Building and Publicity Strategy Formulation</b></p> <p>AS(TEL) apprised the PAB that this project had been completed, however, the expenditure incurred was more than the amount released as the first installment (Rs. 5 lac). IIM Ahmedabad, instead of asking for the 2<sup>nd</sup> installment of the approved funds, adjusted the expenditure (another Rs. 5 lac) from the funds released for Awareness building and publicity strategy formulation project. AS(TEL) also mentioned that IIM Ahmedabad was not inclined to move ahead on this project without a provision of Institute overhead. Ultimately, the project was taken over by the Mission Secretariat and IIM Ahmedabad was asked to refund the money released to them for this project. They returned the money after adjusting the balance expenditure incurred on the first project, as mentioned above.</p> <p>The above was noted by the PAB.</p>	-

<p><b>6.3. Content Generation for Undergraduate Courses In Agricultural Entomology –CSK Himachal Pradesh</b></p> <p>The PAB members were informed that CSK, Himachal Pradesh has, through a recent Fax, communicated to the Chairman, PAB that they will now complete the project in time.</p>	-
<p><b>Item No.7</b></p> <p><b>Future Roadmap of NMEICT - Continuation in XII Plan Period</b></p> <p>AS (TEL) and Mission Director (NMEICT) apprised the PAB that in the Apex Committee meeting of NMEICT, the Advisor (Planning Commission) had informed that the Mission will continue in the XII Plan also.</p> <p>The above was noted by the PAB.</p>	-
<p><b>Item No.8</b></p> <p><b>Strategy for Popularization of NMEICT</b></p> <p>AS (TEL) and Mission Director (NMEICT) informed the members that this issue had been discussed with Chairman PAB and it is proposed to discuss with UNESCO if they would like to participate in the process of popularizing NMEICT. PAB members felt that rather than have just a Logo competition, it would be best to have a total holistic promotion and advocacy campaign for NMEICT</p> <p>Additional Secretary (TEL) &amp; Mission Director (NMEICT) assured the members that the Mission will act on these directions and will move ahead.</p>	Under Process.
<p><b>Item No.9</b></p> <p><b>Approval for sitting fee to Members of DTH Committee</b></p> <p>It was apprized that Prof. S.V. Raghavan, Scientific Secretary, Office of the Principal Scientific Adviser to the Government of India chairs the DTH Committee constituted by the PAB regularly.</p> <p>The DTH Committee is a Committee of Domain Experts, at par with Standing Committee of NMEICT. Standing Committee members are paid a sitting fee of Rs.1000/- per meeting. The Education Secretary (HE) in the capacity as PAB Chairman has kindly approved a proposal for payment of Rs.1000/- as sitting fee to the Members of the DTH Committee and DTH Expert Committee also for each of the meetings in the past. Ratification of this decision of Chairman, PAB was sought.</p>	File under submission.

<p>The PAB ratified the decision for payment of Rs.1000/- as sitting fee to the Members of the DTH Committee and DTH Expert Committee for each of the meetings held in the past and approves payment of sitting fee of Rs.1000/- for each of the subsequent meetings in future also.</p>	
<p><b>Item No.10</b></p> <p><b>Virtual Lab, IIT Delhi - Approval of extension upto 31<sup>st</sup> March, 2013</b></p> <p>AS (TEL) and Mission Director (NMEICT) informed the PAB that IIT Delhi as the coordinating institute for the Virtual Labs project had put in a request for extension of the project up to March 31<sup>st</sup> 2013. Currently the project is set to finish on 31<sup>st</sup> December 2012. Secretary (HE) and Chairman PAB said this was an important project and its usage must be encouraged as it was an important project.</p> <p>The above was noted by the PAB and the Virtual Labs project was granted an extension till March 31<sup>st</sup>, 2013 subject to PRSG recommendation.</p>	<p>PRSG recommendations awaited.</p>
<p><b>Item No.11</b></p> <p><b>Budget Estimates for 2012-13 for TSG/Mission Secretariat of NMEICT</b></p> <p>The PAB members were informed that the Budget proposed on this for the year 2012-13 for the Mission Secretariat is well within the overall ceiling of 1% of the total outlay fixed for the project. It was also informed that funds on this are released to EdCIL on actual expenditure basis.</p> <p>The PAB approved overall budget expenditure of up to Rs.3.19 crore for the Mission Secretariat for the year 2012-13 as per budget estimates provided.</p>	<p>Rs.1 crore already released.</p>
<p><b>Item No.12</b></p> <p><b>Representation of Mr. Sushil Prakash, Senior Consultant, NMEICT.</b></p> <p>Additional Secretary (TEL) &amp; Mission Director (NMEICT) and Member Secretary informed the members that at present Senior Consults in NMEICT are paid a Consultancy fee of Rs.75,000/- p.m. and the pension amount received by two Senior Consultants is deducted from their Consultancy Fee. Further one of the Senior Consultant (among the two) working under NMEICT namely, Shri Sushil Prakash belongs to 1976 batch of Indian Telecom Services and had worked with the Department of Telecommunications (DOT), Government of India from 16<sup>th</sup> August 1976 to 31<sup>st</sup> March 1991.</p>	<p>Under process.</p>

<p>Shri Sushil Prakash had also worked with Bank of America from February 1, 1997 to April 3, 2009. Shri Sushil Prakash had last worked with TATA Tele Services Limited from 15.5.2009 to 30.12.2011, wherein for the month of November, 2011, he had drawn net average salary of approximately of Rs.4.5 Lakhs per month.</p> <p>Presently, from Government of India, Mr. Sushil Prakash is drawing a total of Rs. 11,222/- p.m. as pension and DA on pension. His Last Pay drawn plus DA admissible on last pay drawn is only Rs.7000/- p.m. (for having served Govt., of India from 16<sup>th</sup> August 1976 to 31<sup>st</sup> March 1991). Thus as per norms Mr Sushil Prakash can be offered contractual appointment on a remuneration of Rs.75,000/- p.m. subject to the condition that the remuneration and pension plus DA admissible on pension should not exceed his last pay drawn plus DA admissible on last pay drawn. Thus the admissible remuneration of Mr Sushil Prakash, Senior Consultant, NMEICT <b>results to be nil rather negative.</b></p> <p>Mr. Sushil Prakash has joined NMEICT w.e.f. January 2, 2012.</p> <p>The anomaly caused by linking pension with the Consultancy Fee was deliberated in depth by the members. The PAB recommends the pension being presently deducted from the Consultancy Fee of all the Consultants be delinked from the issue of payment of their Consultancy Fee, from the date of their joining NMEICT and the pension amount need not be deducted from the Consultancy Fee of the Consultants, in NMEICT.</p> <p>This PAB recommends to EdCIL for their Board's approval on above, since all the Consultants have been recruited through EdCIL.</p>	
<p><b>Item No.13</b></p> <p><b>Consideration of Sitting Fee to Members of Project Reviewing and Supervising Group (PRSG) under NMEICT</b></p> <p>After deliberations, PAB approved payment of sitting fee of Rs. 1000/- to Members of Project Reviewing and Supervising Group (PRSG) under NMEICT for their participation in meetings, at par with the sitting fee of Standing Committee members.</p>	<p>File under submission.</p>
<p><b>Item No.14</b></p> <p><b>Space for DTH Up linking and NMEICT Office at JNU</b></p> <p>Additional Secretary (TEL) &amp; Mission Director (NMEICT) and Member Secretary apprised the members that the MHRD has been allocated two satellite transponders by ISRO, and we do not have space, to house DTH teleport and the NME-ICT</p>	<p>The proposal under process.</p>



Mission Secretariat office. In this regard Education Secretary (HE) MHRD on June 1, 2012, wrote a letter to VC, JNU and subsequently had a meeting with him. Further MHRD team headed by Additional Secretary [TEL] visited JNU campus to look for a suitable place.

The MHRD team in consultation with designated JNU Officials, and based on technical and other criteria, selected a building of SCRS / School of Information Technology, presently being built by the JNU in its Campus. The building has been planned to accommodate ground plus three floors including a basement. The building has plinth area of about 2000 sm. It was decided that the three floors (First, second and third floor) in the building with each having plinth area of 2000 square meters can be made available to the MHRD, for a mutually agreed period, on payment basis.

The Issue was reviewed by the DTH Committee, during its 7<sup>th</sup> meeting held on September 26, 2012.

The PAB based on the DTH Committee recommendations, approved a sanction of Rs.13.00 Crores to be paid to JNU for civil constructions of three floors and further Rs.6.5 Crores (on account of AC, Electricity etc) to be paid on completion of Civil work. The constructed three floors shall accommodate DTH Activities and NMEICT office space for a period of 5+5 years period, which can further be renewed on mutual consent basis. The PAB recommended that a detailed financial proposal on this be sought from JNU and terms and conditions of MOU be finalized mutually.

The PAB further suggested that the JNU may also be requested to take a leading role in the management and content generation of DTH channels for which the PAB on the recommendations of DTH Committee has agreed to set up to 10 Teaching Ends at different Schools in JNU and shall also be provided recurring and Non-Recurring financial and technical assistance for establishing Education Multimedia Centres and Digital production set up. The JNU in turn should provide all the educational content produced from these facilities for DTH and NMEICT use. However a detailed project proposal shall be prepared by a joint working group of experts on this from JNU and NMEICT as per the terms and conditions of the MoU to be signed between JNU and MHRD.

PAB approved the agenda item.

<b>Item No.15</b>			
<b>Revision of Consultancy Fees on Contract Renewal of NME-ICT Consultants.</b>			
<p>Additional Secretary (TEL) &amp; Mission Director (NMEICT) and Member Secretary informed the members that presently, all levels of NMEICT consultants are getting a fixed and consolidated Consultancy Fee (with all inclusive), which is decided at the time of initial engagement of these people and it is continued at the same rate, on their contract renewal. All Senior consultants with the NMEICT are presently on renewed contract, at the same rate of consulting fees, as fixed on their initial engagement. AS(TEL) apprised the members that in case of contractual appointments under SSA, Mid Day Meal, NLMA and other schemes under MHRD, the Consultants are given consultancy Fee in a 'Range', and therefore annual raise is possible, while under NMEICT; the Senior Consultants are having fixed consultancy Fee.</p> <p>The matter was deliberated in depth and the PAB recommended that Senior Consultants working in NMEICT be provided enhancement in their Consultancy Fee, based on their performance review as under, starting from their last contract renewal, i.e., April 1, 2012</p>			
File is being sent to IFD.			
<b>S.No.</b>	<b>Category</b>	<b>Present Consolidated Fee</b>	<b>Proposed Consolidated Fee</b>
1	Senior Consultant	Up to Rs.75000/-	Rs.60,000 - 90,000
This PAB recommends to EdCIL for their Board approval on above, since all the Senior Consultants have been recruited through EdCIL.			
<b>Item No.16</b>			
<b>1 Gbps connection for Shastri Bhawan, New Delhi</b>			
<p>In view of higher requirement of bandwidth for telepresence kind of video conferencing with the Universities, it was informed to PAB that a request shall be made to NIC to enhance connectivity to 1 Gbps for Shastri Bhawan. In case NIC will not be able provide this facility, the connectivity shall then be funded through NMEICT. PAB approved providing of 1 Gbps connection for Shastri Bhawan out of the funds of NMEICT, in case NIC / NKN did not provide this bandwidth.</p> <p>However, Shri R.S. Mani from NIC who was present in the meeting assured the members that within a week's time, the 1 Gbps connections for Shastri Bhawan, New Delhi will be provided.</p>			
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### Other observations of PAB

- Chairman, PAB was emphatic that the Standing Committee should provide their recommendations in clear terms and spell out details on deliverables, time-frame and cost breakup, while recommending new proposals. Chairman, PAB also stressed that the composition of the Standing Committee should be broad-based while reviewing and recommending the new proposals. There should be broad guidelines to be approved by PAB for constituting Standing Committee in its next meeting so that there is more transparency in the system.
  - Mr. R.P. Agrawal mentioned that lot of good work has been physically done in projects under NMEICT, which should reach the students and academic faculty. He further informed that NPTEL content is being accessed by only about 700-800 engineering colleges out of 4000 colleges/institutions in the country. Strong need was felt on ensuring that the benefits of this whole exercise of providing connectivity & content should reach to a large number of students/aspirants of colleges/institutions as much as possible. It was further stressed upon that the contents should be made available to the students and academic faculty in the form of DVDs/ VCDs at the cost of raw DVD/VCD, packaging & its transfer charges and with some incidentals only and the students and teachers should be informed through announcements/advertisements where such material shall be available and at what cost.
  - Chairman, PAB stressed that there is need to publicize the material through the electronic media in a professional manner. It was also decided to explore the possibility of producing an advertisement in the form of advertisement/ movie, etc through UNESCO, similar to what is being done for SSA by UNICEF.
  - Chairman, PAB further stressed that in the agenda certain things like deliverables, time frame; especially break up of the cost etc should come up front. Screening (Standing) Committee should clearly furnish its recommendations to PAB. Recommendations should be spelt out clearly by the Standing Committee.
- AS(TEL) & Mission Director told that on 9.10.2012, format can also be seen and prescribed.

One of the agenda items for next meeting.

- Chairman, PAB emphasized that in the next meeting, PAB should be provided with the list of such institutions to which project was sanctioned and the progress is slow. Those projects should be highlighted and effort should be made to complete the project. He further emphasized upon the appropriate use of funds which the Government of India is sanctioning for the projects
- Director, IITM through Skype briefed the Members that one of the suggestions made by the Empowered Committee for implementing the 'Kakodkar Committee Report' is to carry out the programme for Engineering College Teachers by enthusing students & teachers to obtain M Tech Degree through Live & Online Courses conducted by IITs. Typically between 4 to 7 PM lectures will be delivered through ICT mode and the registered students/teachers during summer vacations can visit IITs for the laboratory part and can latter take up the exams for successful completion of the course.
- On query of proper utilization of funds and proper CAG audit, Additional Secretary (TEL) & Mission Director (NMEICT) informed that some of the private institutions had initially got 1<sup>st</sup> or 2<sup>nd</sup> installment of the funds directly, however, their 3<sup>rd</sup> installment and beyond have been routed through respective IIT so as to ensure proper usage and audit of funds.
- It was felt that on repeated request from institutions, NMEICT should provide upto 5% overhead charges on the project sanctioned to such Institutions in the 12<sup>th</sup> Plans.

Name of the Project: **Learning by Doing (LBD) based Course Content Development in areas of CS and ECE**  
Control No.: **KE - 21080910249**  
Name of the Institute: **IIIT Hyderabad (IIIT-H)**  
Name of PI: **Prof. Sandhya Kode**

**A) Objectives of the project**

- To develop E-courseware for core areas of the computer science undergraduate curriculum such that:
- Coverage: Most of the topics covered is of interest to students across the world and is part of the standard undergraduate computer science curriculum
- Pedagogy: It is attempted optimally to leverage the various advantages of “Learning by Doing” (LbD) based pedagogy while designing the contents. Specifically, this may include the facilities like user-created examples and illustrations, user-defined schedules, visualization of the concepts wherever possible, simulation-based verification and “fail-explain-understand-appreciate-apply” and yet risk-free learning, access to the large pool of information regarding any topic on the Internet, and possibly an academic-networking site and the benefits thereof.
- Synergy: Certain courses like “Great Ideas in Computer Science” are likely to be very important for students to synergize all that they have learnt in various areas. However, such courses are seldom taught in all colleges. The project expects to provide such courses too; the synergy could also be with other disciplines like Natural Sciences, Linguistics or Structural Engineering as well.
- To facilitate dissemination of the content via powerful ICT-based means like websites, forums based guidance etc., such that:
- Availability: The contents are easily accessed by almost all students across the various engineering colleges in the country (provided they have access to the Internet)
- Interaction: Forums facility for several contemporary users to interact wherever necessary and possible to improve the overall impact. Note that some of users may be advanced learners and therefore could help out the new students beyond what the courseware can handle.
- Adaptability: Easy and swift feedback mechanisms are possible in the world of ICT and facilities may be provided for the courseware to be adapted/fine-tuned according to the users’ feed-back.
- Verifiability: Nothing is a better test than trying out the contents of the courseware in various environments and students communities. Efforts may be placed on organizing workshops etc. for such a real-time verification process.
- To encourage simulation/virtual reality based environments where students can learn concepts/skills via hands-on (yet risk-free) experiences and failures.
- Attempts may be to emulate the globally understood paradigm of learning namely, through several “practice-theory-practice” cycles.
- Motivation or the need for learning new concepts or even creating new knowledge can be easily identified and highlighted in a simulated environment.
- Apart from the skills of “how to solve”, the simulated environments can also shed light with ease on “what to solve” and “why to solve”.
- To organize workshops for discussions and feedback on the content, once it is developed, as part of this project. The workshop will have renowned experts from reputed institutions in the country, teachers from engineering colleges, expert educationalists and students. The workshop participants would:
  - Evaluate the developed course contents
  - Provide feedback for improvements
  - Provide future directions for the next phase of the project

**B) Deliverables of the Project**

Develop course content for the following 17 courses:

- 1) Advanced Data mining techniques
- 2) Analog Design
- 3) Chem Enablement
- 4) Computer Organization with ARM
- 5) Datamining and Data warehousing
- 6) Design Automation for VLSI
- 7) Digital Logic Design
- 8) Digital System Design using Verilog

- 9) E-Governance
- 10) Embedded Systems
- 11) Pattern Recognition
- 12) Social Networking
- 13) Solid State Electronic Devices
- 14) Topics in Embedded Systems
- 15) VLSI Architectures
- 16) VLSI and Design for Testability
- 17) Web mining and Text mining

**C) Recommendations of the Standing Committee's:**

- i) The PI presented herself to the Standing Committee in its meeting held on 19<sup>th</sup> February 2011. The SC has recorded its recommendations on the project as under:

*"Ms. Kode already presented the pilot phase project during the last review meeting. They were asked to submit the DPR.*

*The main DPR was presented by Ms. Kode. The PI was asked to focus on course development only. The SC recommends that the PI completes all the seventeen courses that they proposed. The discussion switched to the budget. The PI argued that the Butterfly model resulted in a larger cost of Rs.10 Lakhs per course. The PI was asked to present on how they arrived at Rs.10 Lakhs. The SC will go through the budget breakup and decide whether their break up is reasonable".*

- ii) The Standing Committee in its meeting held on February 22, 2012 further deliberated on the project and recorded its decision as under:

*Prof. Sandhya Kode had made presented earlier on the same and had been requested to revise her proposal from its proposed budget of Rs.10 Lakhs per course to the lowest possible. The Learning by Doing as a project was given and was well received at 30 Lakhs for three courses. However, the facilities created in the Pilot and the Experience gained in the process would have to be taken into account and her current proposal for the 17 Courses at the rate of Rs.7 Lakhs, is reasonable.*

*Any cost overrun will be indicated by her and prior sanction will be taken before approving additional budget. It was also suggested by her that several courses are at the under graduate level therefore she would not include in the content creation process the research and analysis of the 'Blooms Taxonomy' for the Butterfly model. The Committee approved her proposal in its entire form since the course created will be a valuable add on to on the content creation schemes by including interactive learning in the design of the course itself. A sum of Rs.1.19 Crores for 17 Courses is recommended.*

**D) Due Diligence on the project by the SC, in its meeting held on 31<sup>st</sup> October, 2012**

The SC member deliberated and observed that the PI, during her first presentation to the SC, had proposed to develop e-content in 17 courses using 'Butterfly Model' each at a cost of Rs.10 Lakhs and the SC requested the PI to reduce the budget.

The SC in the following meeting recorded that the PI has now revised the proposal, to produce the 17 Courses at the rate of Rs.7 Lakhs per course, each course consisting of 40 hours and to be produced in four quadrant format.

**The SC members observed that:**

- a) The topics of the course proposed by the PI, have so far not been covered in its totality under the NMEICT e-content development.
- b) The rate of development of e-content Rs.7Lakhs, per course, in four quadrants and a sum of Rs.1.19 Crores for production of 17 Courses as approved by the SC to the PI, is reasonable and as per approved rate of e-content production in the Mission document.

Project Name: Developing suitable Pedagogical methods for various classes, Intellectual Calibers and Research in e-learning  
PI: Prof. Anup K Ray  
Institution: IIT Kharagpur  
Control No.: ARE 04061212597

### **A) Background**

The project envisages to fundamentally innovating Indian Engineering Education System and attempting to reduce spoon-feeding the students with what the teachers know best. It is conscious plans to free teachers from taking up the role of the “sage on the stage” and to allow them devote more time and effort to turn their students into self-learners. The idea is to **rewrite engineering curriculum** in terms of well defined learning objectives using *taxonomies of learning*, so that all constituents - the students, the teachers, the departments, the institutions, the parents/ guardians, the employers and the society at large know in advance, what exact knowledge and skills the students are expected to acquire and be able to demonstrate on successful completion of their programme of study. The basic principle is to ensure that at the end of a 4 year programme of study, students not only gain competency in their chosen discipline defined by the **Learning Objectives** of various courses set by the teachers, but are also able to demonstrate a generic set of knowledge, skills and attitudes called **Learning Outcomes** (irrespective of the discipline), which are considered essential for all graduate engineers in the present day world.

### **B) Objectives**

- **Rewrite engineering curriculum** in terms of well defined learning objectives using established *taxonomies of learning* (*Bloom’s Taxonomy / Vincenti’s Categorization*) and preferably using procedures suggested by Gronlund for writing *Instructional Objectives*.
- Devising learning (teaching) strategies to ensure that the programme /course level **learning objectives** in the concerned engineering discipline and the **Learning Outcomes**, mentioned above are learnt (taught) simultaneously
- Devise a set of problems / assignments / tasks which need to be solved by students as proof of accomplishment of **learning objectives** as well as **learning outcomes**. For a course that typically requires 40 hours of classroom instruction around 115-120 such assignments are expected to be developed.
- Specify different assessment tools and evaluation methods to be used for student achievement evaluation in each course.

### **C) Deliverables of the Project**

The deliverables of the project is to develop pedagogical framework and not the content for 200 UG level courses with the following components:

- Course background (institution mission/ vision, Programme Educational Objectives and course list)
- Course overview, course objectives, course level problems with solutions (around 3-4), 6 to 10 modules in each course with module overview, objectives, module level problems (around 20) and module summary (12-16 pages)
- Each module to have 5-6 units with unit level problems and solutions.

The content deliverables in quantitative terms will be as follows:

- 200 course overview
- 200 course objectives
- $200 \times 3.5 = 700$  course level problems with solutions
- $200 \times 7 = 1400$  module overview
- $200 \times 7 = 1400$  module objectives
- $200 \times 7 \times 20 = 28000$  module level problems with solution
- $200 \times 7 \times 14 = 19600$  pages module summary
- $200 \times 7 \times 5.5 = 7700$  units overview
- $200 \times 7 \times 5.5 = 7700$  unit objectives
- $200 \times 7 \times 5.5 \times 5 = 38500$  unit level problems and solutions

Another major component of the project is training of faculty members (SMEs and External Reviewers) in designing and developing pedagogical framework. This will cover:

- 6 national seminars
- 6 national training workshops
- 12 regional seminars
- 12 regional training workshops
- 1 national conference and
- 1 international conference.

Year wise Deliverables:

#### First year

- Identify all institutions / experts, expected to participate in the Main Phase.
- Identify all new courses (100+), organize training programme for fresh experts.
- Complete development of all partially completed pilot phase courses. ( around 80 courses)
- Design a separate user friendly interactive website for end users
- Make all pilot phase courses available to the user community.
- Conduct pilot field trial and take appropriate steps.
- Complete 20% development of 100+ new courses
- Conduct 2 National Seminars + 2 National Training Workshops  
3 Regional Seminars + 4 Regional Training Workshops  
1 National/ International Conference

#### Second year

- Complete additional 60% development of 100+ new courses
- Conduct second pilot field trial and take appropriate steps.
- Conduct 2 National Seminars + 2 National Training Workshops  
4 Regional Seminars + 4 Regional Training Workshops  
1 International / National Conference

#### Third year

- Complete additional 20% development of 100+ courses
- Make all 180 + courses available to the user community.
- Conduct third field trial and take appropriate steps.
- Conduct 2 National Seminars + 2 National Training Workshops  
5 Regional Seminars + 4 Regional Training Workshops



#### **D) Recommendations of the Standing Committee's:**

In the 2<sup>nd</sup> Meeting of the Standing Committee March 25, 2009 recommended the project as it addresses an important issue of most optimal pedagogical methods for different individuals with different intellectual capabilities. Each one of them has to be nurtured differently, and mission should take care of all classes of intellectual capability. Each available human resource needs to be trained to benefit the country and society at large. Multiple institutional partners are there, which will take care of regional variations in pedagogical issues. For the pilot phase Rs. 5 Crores was recommended.

In the 22<sup>nd</sup> Meeting of the Standing Committee held on February 6, 2010 the SC has appreciated the entire work done by the PI and advised that the training has to be scaled up from 800 numbers to 8000 numbers. Prof. Ray was asked to submit the DPR.

In the 23<sup>rd</sup> Meeting of the Standing Committee held on February 20, 2012, PI of the project Prof. A. K. Ray of IIT Kharagpur requested for re-distribution of the Rs. 5 crore that he already received. He suggested that the faculty honorarium component be increased and equipment budget be decreased, keeping the total the same.

In the 51<sup>st</sup> Meeting of the Standing Committee held on March 26, 2011 there was a question of interpretation of the Minutes of the Standing Committee, held on 6 Feb. 2010. The relevant minutes recorded "This work was most appreciated by the standing committee. Prof. Ray was asked to submit the DPR." Prof. Ray informed SC that the second installment of the pilot phase project has not been released yet and hence they are unable to complete the pilot phase itself. The SC recommended that the second phase of the pilot phase project be released immediately. The SC recommended an extension of six months to complete the project, without any additional financial implication. The SC agreed with the PI that in projects such as this, a major expense is the course creator honorarium. It is required to come up with acceptable norms so that the course creation can proceed. The SC also recommends that the pilot phase project be completed and that the DPR of the main phase be submitted.

In the Standing Committee Meeting held on 8<sup>th</sup> June, 2012 and October 31, 2012 the main phase proposal was reviewed. SC appreciated the effort made in the pilot phase and strongly recommended the continuation of the project in the main phase. SC found the proposed budget for the main phase quite reasonable. Pilot phase closure will be required to carry forward the project in the main phase. PI was suggested to conduct the PRSG meeting at the earliest for the closure report.

#### **E) Due Diligence on the project by the SC, in its meeting held on 31<sup>st</sup> October, 2012**

The total budget proposed by the PI for developing Outcome Based Curriculum Framework for 200 courses is Rs. 16 Crores and per course cost is amounting to Rs. 8 Lakhs. The SC worked out on the per course costing based on the standard norms for the NMEICT and following cost breakup was arrived at:

- Payment to SMEs:  $500 \text{ (SMEs)} / 200 \text{ (courses)} = 2.5 \text{ SMEs}$  get Rs.  $1.166 \times 2.5 = 2.916$  lakh
- Payment to External Reviewer:  $400 \text{ (Ext. Reviewer)} / 200 \text{ (courses)} = 2 \text{ Ext. Rev.}$  get Rs.  $1.166 \times 2 = 2.332$  lakh
- Cost of capacity building of these 200 SMEs & experts –  $295 \text{ lakh} / 900 = 0.32$  lakh (per person)  
So cost per course will be  $(2.5 + 2) \times 0.32 \text{ lakh} = 1.44$  lakh

So total expenditure per course (excluding administrative cost & external travel) will be Rs. 2.91 Lakhs + Rs. 2.332 Lakhs + Rs. 1.44 Lakhs = Rs. 6.682 Lakhs

This roughly corresponds to Rs. 7 lakhs per course for content development in 4 quadrants. Adding up the travelling and administrative cost the total cost per course works out to Rs. 8 lakhs.

The SC found the budget proposed for developing pedagogical framework for 200 courses quite reasonable as compared to the efforts required in developing the e-content in four quadrants. Intellectual inputs required in this case in much higher and faculty needs to be compensated accordingly for their efforts and time spent.

SC felt that the project is very innovative, first of its kind and at par with the requirements of the Washington Accord where India is a signatory. SC strongly recommended the extension of the project in the main phase with the proposed budget submitted by the PI.

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# Teachers Empowerment, Students Empowerment, and Integration of Tools for Empowerment (Synchronous Delivery), abbreviated as Talk to a Teacher project

Kannan M. Moudgalya (IIT Bombay)  
Prof. D. B. Phatak (IIT Bombay)  
Prof. Somnath Sengupta (IIT Kharagpur)

23 October 2012

## 1 Objectives

Ten 1,000 teacher training programmes have been completed. A 10,000 teacher training programme also has been completed. The objective of this proposal is to conduct fifteen 10,000 teacher training programmes. Nine of these will be organised by IIT Bombay and the rest from IIT Kharagpur. The spoken tutorial project will increase the number of students trained. It will also create a large number of dubbed tutorials. A very important objective of this proposal is to establish Nodal Centres and 500 remote centres to sustain and to spread these activities.

## 2 Deliverables

The deliverables are as follows:

### 1. First year:

- Establish 6 nodal centres and 300 remote centres
- Train 40K teachers through four 10K teacher training programmes
- Create 100 original and 1,000 dubbed spoken tutorials
- Train 50K students through spoken tutorial based workshops
- Amount to be released in the first year is Rs. 68.56 crore

### 2. Second year:

- Establish 2 nodal centres and 100 remote centres
- Train 50K teachers through five 10K teacher training programmes
- Create 100 original and 1,000 dubbed spoken tutorials
- Train 50K students through spoken tutorial based workshops

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- Amount to be released in the first year is Rs. 57.72 crore

### 3. Third year:

- Establish 2 nodal centres and 100 remote centres
- Train 60K teachers through six 10K teacher training programmes
- Create 100 original and 1,000 dubbed spoken tutorials
- Train 50K students through spoken tutorial based workshops
- Amount to be released in the first year is Rs. 65.74 crore

## 3 Recommendations

The Standing Committee appreciates the work done by the PI in coming up with methodologies to scale up the training programme from 1,000 teachers at a time to 10,000 teachers. The SC welcomes the initiative to train 1,50,000 teachers at a substantially lesser TA/DA compared to the previous phase. The SC urges the PIs to explore ways to reduce this amount further. The SC wishes that the number of simultaneous participants be increased from 10,000 to a larger number, at least for a few courses. The SC wishes that eventually the number of remote centres should cover all engineering colleges and through them, good academic programmes can reach all colleges and all 8.5 lakh teachers.

The SC also appreciates the excellent work done through spoken tutorials. The SC commends the PI for coming up with a model to conduct a large number of workshops without the payment of TA/DA and without domain experts. The spoken tutorial methodology will be useful to promote IT literacy, to improve employment and to bridge digital divide.

## 4 Scaling up

The PIs will try to bring the nodal centres to the levels of IIT Bombay and IIT Kharagpur so that a large number of activities can be taken up in parallel.

## 5 Popularising and extension activities

As the number of people trained is very large, the word of mouth alone will spread an awareness of these activities. In addition, we plan to place advertisements in newspapers and magazines to popularise these activities.

### 5.1 Extension activities

The web pages will be configured to provide maintenance and to obtain feedback. The LMS Moodle will also be used for this purpose. A large number of activities will be taken up at the nodal centres and remote centres.

  
G. Srinivasan

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V. Rajesh

## 6 Review mechanism

- Reviews will be taken from experts and users
- Reviews will also be taken through online feedback and through ranking and polls
- Reviews will be taken for the courses delivered and also on the support material provided

**Frequency of review:** Major reviews will take place every six months. It is proposed to get intermediate reviews from users on a day to day basis.

**List of reviewers:** A minimum of ten reviewers is required.

1. Prof Arun Nigavekar
2. Prof Mangala Sundar
3. Prof Gupchup, (ex director VJTI)
4. Prof Prakash Vyawahare (SGSITS Indore)
5. Prof. Kinshuk, Athabasca University, Canada
6. Prof. Adrian Cheok, Keio University, Japan
7. Prof. Vasudha Kamat, VC, SNDT University
8. Prof. Kesav Nori, former TCS Vice President, Research
9. Prof. Nian Shing Chen, National Sun Yat-sen University, Taiwan
10. Prof. A. K. Ray, IIT Kharagpur

## 7 Budget

The total budget is Rs. 192.02 crore. A detailed breakup is given in the DPR.

### 7.1 Captial Expenditure

One each of huge portal servers will be procured at a cost of about Rs. 2 crore at each of the two IITs. If the NMEICT's e-cloud comes up, this purchase will be abandoned.

Video capture and editing equipment including cameras and PC workstations and laptops for content creation are needed, but no single equipment is likely to cost more than Rs. 10 Lakhs.

### 7.2 Revenue Expenditure

Honorarium, salaries, etc. will be given as per MHRD rules.

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Srivastava 79

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Review mechanism

### 8 Cost benefit analysis

First of all, a 10,000 teacher training programme is equivalent to 300 QIP programmes. It would take many years to complete the equivalent of even one course in the conventional way. The cost of running this programme is much less than that of conventional programmes. This method allows a large number of teachers to benefit from excellent teachers. In addition to training at a comparable prices, this project will also create content and also establish communities for sustenance of these activities. The spoken tutorial part of this project will conduct about 5,000 workshops, the cost of organising it through usual methods will be a lot more than what is asked for in this project. Once again, we will also be creating a large amount of content that can be used by many people even after the completion of this project.

### 9 Social impact

A large number of teachers and students in higher technical education have to work in environments with inadequate academic infrastructure. They are deprived of the quality contents, teaching methodologies, and academic rigour which are available in IITs, NITs and in a few other select Institutions. This project will take the academic ethos of these Institutions to all students and teachers.

The Spoken Tutorial project will help improve the IT literacy amongst the students of many colleges in India. This project also has the potential to bridge the digital divide and to arrive at methodologies to impart education in the general area of skills.

### 10 Outcome

A large number of teachers and students will be trained, in addition to the creation of a large amount of content, which will be useful even after the project is completed. The teachers will be able to use the material created in this project. The students trained through spoken tutorials will get better employment. This project will also help improve IT literacy and help bridge digital divide. Finally, a large number of remote and nodal centres will be established. These will in turn help spread these activities further.

A collection of handwritten signatures and initials in black ink, including a large stylized 'W', a signature that appears to be 'K. Srinivasan', a signature that appears to be 'V. K. Arora', a signature that appears to be 'S. R. Aravamudan', and the number '80' followed by a signature that appears to be 'P. Subramanian'.

Name of the Project: **E-Resource for Geoinformatics Applications, Education and Training**  
Control No.: **HE-11081011220**  
Name of the Institute: **INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
Name of PI: **Prof. (Mrs.) P. Venkatachalam, Head, CSRE**

**A) Objectives of the project**

- Creation of multilayer, multiscale and multitheme geospatial databases
- Creation of geospatial applications demonstrating use in planning, disaster mitigation, natural resource management, environmental planning and assessment
- Creation of e-content for geoinformatics education and training

**B) Deliverables of the Project**

The deliverables can broadly be grouped under three categories:

- Geospatial benchmark databases
- Application modules
- ***E-Learning Suite*** for geospatial technologies

The details are as follows:

- Spatial databases covering a multitude of themes, at various spatial scales, organized in multiple layers that cover from macro-level to micro-level applications
- Applications will be demonstrated using free open source software that end users can download
- Primary focus for the usage of benchmarked spatial database is Undergraduate and postgraduate students of Geoinformatics in various engineering colleges across the country.
- Spatial databases can also be used by planners, decision makers and trainers for their application/algorithmic specific demonstrations, as well as for capacity building.
- Sample models for applications illustrating utility of geospatial technologies and databases for selected real life scenarios
- Documented case studies and teaching materials for geospatial technology applications
- ***E-Learning Suite*** for training in the area of geospatial technology tools and techniques as well as selected application areas.
- Broad areas for tools and techniques include
  - Remote Sensing
  - Satellite Image Processing
  - Geographic Information Systems
  - Global Positioning Systems

There are a total of 12 institutions that are partners in this project. These are:

1. Indian Institute of Technology, Bombay
2. National Institute of Rural Development, Hyderabad
3. Indian Institute of Technology, Roorkee

4. Indian Institute of Technology, Kanpur
5. Indian Institute of Geomagnetism, Mumbai
6. Maharashtra Engineering Research Institute, Nashik
7. National Institute of Oceanography, Goa
8. Central Institute of Fisheries Education, Mumbai
9. SGS Institute of Technology, Indore
10. Bundelkhand Institute of Engineering and Technology, Jhansi, Uttar Pradesh
11. Institute of Rural Management, Guwahati
12. Snow and Avalanche Study Establishment, Chandigarh

They propose to develop 16 applications and 22 courses. They also propose to do a detailed study with data from one block from Pune. Data will also be obtained and used from areas that are prone to avalanches, land-slides and coastal areas.

The project also proposes to develop certain tools for geo-spatial analysis. These tools will also help to replace expensive proprietary tools available in the market. They propose to develop FOSS tools to analyse the maps that they will generate using satellite data, which is proprietary.

This work will be useful for planners, service personnel and educators and learners.

### **C) Recommendations of the Standing Committee's:**

Prof. Mrs. Venkatachalam, Head of Centre of Studies in Resources Engineering (CSRE), IIT Bombay, presented this proposal a third time to the SC. She proposed it the first time in the SC meeting held in March 2011, with a budget of Rs.5.06 crore. While appreciating the proposal, the SC had asked her to reduce the budget. The PI presented a revised proposal in the SC meeting held on 23 March 2012.

In the meeting on 5<sup>th</sup> March, 2011 the SC reviewed this proposal and was satisfied with the deliverables and methodology. However, SC recommended that a detailed due diligence needed to be done on the financials before this project could be recommended. SC recommended that the budget norms have to be based on a combination of (1) e-content generation, (2) virtual labs, and (3) open source software development

PI was once again called to make a presentation to the SC on 23<sup>rd</sup> March 2012. At that time, the **budget was brought down to about Rs. 3 crore**. They had achieved this reduction by asking the partner institutions to contribute to some of the resources, such as data and software, without billing this project. After this second presentation to the SC, the PI was asked to see if they could reduce the budget under manpower, travels and honorarium. **In the current meeting, the costing under these heads is reduced, bringing the overall budget down to Rs. 2.502 crore.** *The PI mentioned that although the budget is halved, there will be no change in the deliverables of the project, as envisioned during the first presentation to the SC. The duration of this project is 30 months.*

The SC appreciates the efforts put in by the PI and the Co-PIs to present an acceptable proposal, without affecting the final deliverables and quality. The SC recommends this project proposal.



Mrs. Venkatachalam mentioned that one of the current Co-PIs only would become the next Head of CSRE, IIT Bombay, and as a result, he would be the right person to head this project, as her term was ending. Hence, she proposed that the Head of CSRE, IIT Bombay, should be the ex-officio PI of this project. The SC accepts this suggestion.

**D) Due Diligence on the project by the SC, in its meeting held on 31<sup>st</sup> October, 2012**

The SC member deliberated and observed that the PI, during her first presentation to the SC, had proposed a budget of Rs. 5.06 Crores. The Standing Committee found this budget to be too high and suggested ways of reducing the budget to the PI. Subsequently, the PI has now brought down the budget to Rs. 2.50 Crores without impacting the deliverables in any manner

The SC in its meeting appreciated that the budget had now been halved and deliberated in detail on whether the deliverables had been impacted in any manner. The SC found that the deliverables were the same as proposed in the original proposal and reductions had been brought about by reducing the budget under the heads of travel, manpower and honorarium.

**The SC members observed that:**

- a) The deliverables remained the same as in the original proposal.
- b) The budget had been brought down from Rs. 5.06 Crores to Rs. 2.50 Crores
- c) There is no other proposal in this area of education.
- d) The topics covered are of great importance as well as will serve the institutions concerned to effectively teach the subjects without having recourse to purchasing databases from foreign sources. The advantage will be a saving in foreign exchange. Also, and more importantly, the benefits to the Indian learners will be that they will now be able to learn and understand based on Indian data and Indian conditions

Name of the Project: **Digital Literacy and Empowerment of Teachers in ICT**

Control No.: **DMI04091212722**

Name of the Institute: **BHU, Varanasi**

Name of PI: **Dr. Abhijeet Singh**

Names of Co-PIs: **Prof. S.K. Singh & Prof. C.P. Srivastava**

**A) Objectives of the project**

- To develop a customized training module for the different levels of computer proficiency.
- To develop a dedicated team of subject experts for conducting training and empowerment programs across the country.
- To train and empower teachers so as to use ICT tools for the effective and widespread dissemination of their subject knowledge.
- To develop well equipped Nodal Centers at strategic locations of the country for imparting training and reinforcement programs at regular intervals.

**B) Deliverables of the Project**

1. **Phase I:** A pool of 1500 Master trainers who will be then imparting the digital literacy training program to the remaining population of teachers in the Phase II.
2. **Phase II:** A population of approximately 120 thousand teachers of higher education from the states of Uttar Pradesh and Bihar trained as digitally literate and well versed in the use of ICT for knowledge dissemination.

**C) Recommendations of the Standing Committee's:**

- i) The PI and Co-PIs presented their proposal to the Standing Committee in its meeting held on 27<sup>th</sup> September 2012. The SC recorded its recommendations on the project as under:

*"The PIs made a reference of a survey conducted by them, from colleges located in Varanasi and adjoining areas, observing that among the University teachers, about 30% and teachers at the college level about 40%, teachers have almost no knowledge of computer. The PIs want to train 1,20,000 digitally not literate teachers in HE in the State of Uttar Pradesh and Bihar. The cost of training per teacher is only Rs.330/-.*

*The SC observed that the proposal on Digital Literacy and Empowerment of Teachers in ICT received from PIs from Banaras Hindu University Varanasi is almost similar in format and methodology to a proposal already discussed under agenda number 8 above.*

*The SC members therefore approved the proposal and agreed that in the first instance the PIs may train 25,000 teachers in six months of time and the cost of training per teacher to be paid by the MHRD for this project shall be restricted to Rs.330/-, however after receiving the PRSG report the SC can further decide on continuation of the project.*

*The SC members observed that the Co-PIs of the project, Prof. S.K. Singh, and Prof. C.P. Srivastava, both being members of the SC, recused themselves as a member of the standing Committee, which*

*resulted in shortage of quorum to approve the project, hence the project is not approved and may be taken up by the next SC meeting for its decision.”*

ii) The Standing Committee in its meeting held on February 22, 2012 further deliberated on the project. The relevant extracts recorded are as follows:

- *In principle project proposal was appreciated.*
- *Members requested that use of only open source tools for digital literacy be done. PI was requested to remove reference to MS Word or any other proprietary products. Instead Libreoffice and other open source should be used. SC requested the PI to train only on Open Source products like Libre Office and ensure that the OS was Linux and not a proprietary OS.*
- *PI was requested to add the learning objectives of each type workshop, so that the outcome of the project can be verified at intermediate and final stages of the project.*
- *Pilot as recommended in the previous standing committee meeting should be given initially. Based on its evaluation major project can be given further.*
- *PI was also asked to clarify what process would be followed for Quality Assessment in the project.*
- *PI was asked to redraft the proposal based on the above and upload it again.*

iii) Further, the Standing Committee in its meeting held on 31<sup>st</sup> October, 2012 sought clarifications from the PI about actions taken by him subsequent to previous meeting. The PI informed that following changes have been made as per the suggestions of the SC:

1. *The training will be only in Libre Office and the OS will be Linux and no proprietary software will be used.*
2. *The control and monitoring mechanism should be done as mentioned and ISTE should be collaborated with for assessment and accreditation.*
3. *In the Pilot phase 25,000 teachers are to be trained in ICT and the duration of the project will be six months with a budget of Rs. 82.5 Lakhs.*

*SC found the revised proposal at par with the requirement of NMEICT objectives and felt the budget to be quite reasonable. SC recommended the proposal for consideration of the PAB for Rs. 82.5 lakhs to train 25,000 teachers in six months as recommended in earlier two meetings.*

**D) Due Diligence on the project by the SC, in its meeting held on 31<sup>st</sup> October, 2012**

The SC members deliberated and observed that PI had satisfactorily addressed all the observations and issues raised by SC in previous meeting. Further, for this NMEICT component of “Spreading Digital Literacy for Teachers’ Empowerment” only two proposals had been found suitable so far by SC in response to NMEICT’s initiative of uploading a RFP on Sakshat in public domain, and carrying out a comprehensive brainstorming meeting on the subject on 31<sup>st</sup> July 2012 (record uploaded on Sakshat). The cost of training per teacher @Rs 330/- was the lower in this proposal, which for 25,000 teachers, comes out to be Rs. 82.5 lakhs.

*SC felt the budget to be quite reasonable and recommended the proposal for consideration of the PAB for pilot phase of the project for Rs. 82.5 lakhs to train 25,000 teachers in six months through 320 Master Trainers to be trained first. The Pilot project cost includes the expenditure on master training programmes for 320 teachers.*