

Proposal for One Year Capacity Development Programme

On

Project Based Learning Approach for Developing An
Institutional Excellence In Higher Education



Proposed By

**Vishwaniketan's
Project Based Learning Centre Of Excellence**

Survey No-52 Off Mumbai-Pune Expressway Kumbhivali,

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Preface

India boasts on the roots of “Guru Shishya Paramapara” since its ancient history. Education in those days was focused on passing knowledge “Dnyan” to the “Shishya” by “Guru” It was well supported by the principals of in Gurukul Premises. In fact, India has the first international university in the name of Nalanda “Vishwavidyalaya”. During those days Indian education was solely based on art and cultural .Accordingly society had various artists and groups of skilled people. Professional Technical education was started at the time when British ruled India, when East India Company first started Gun carriage factory in Guindy. Since, then till date we are following education system inherited from British India.

Currently Indian education system is the third largest in the world with 399 state universities, 126 deemed to be universities, 48 central universities & 334 private universities (UGC) .Gross enrolment in higher education is around 25.8% which is less as compared to the other developed countries. Most of the outcomes from the universities following traditional teaching learning practices are not as per global standards. As per Yashpal, Rao “Knowledge commission reports” , most of the institutions in India focus on rote learning; where the focus is on “remember and reproduce” It’s commented than curricular practices; Teaching, learning & education do not focus on skill development. Especially, in higher education it’s now needed that the education focuses on professional skill such as Design, problem solving, Teamwork & communication skill. It’s also needed that our education must be tuned with current Industrial requirements i.e. revolution “Industry 4.0”, and should able to address the problems of society. Also, Government of India has started schemes like “Start-up India” and “Make in India”. Thus, unless and until we create a systematic change in the educational philosophy & practices, achieving quality higher education, global ranking and success of Government schemes seems to be a difficult goal to achieve. We believe that a “Project Based Learning Approach” could make it possible. In the Project based learning, curriculum development process is based on the current problems. Thus, students receive latest and authentic knowledge required to solve the problem. Students in PBL environment learn problem solving and design skills during the process of problem solving. Thus it promotes novel product development cycle which is essential for strengthening start up India & the make in India. However PBL is not rooted in Indian Education system. Surprisingly none of the universities are practising PBL to its fullest possible extent. This may be because institutes don’t have human resources which can practice PBL effectively. Also, there is a lack of understanding in PBL philosophy; for example most of educators think doing projects is PBL; in fact it is not. Thus, focus of this proposal is to

- Training Educators on PBL philosophy and practice.
- Develop different PBL models suitable for Indian education system.
- Research impact on newly developed PBL models and practice.
- To decide future change strategies to create sustainability in PBL pedagogy.
- To create regional Centre of Excellence in Project Based Learning.

We at Vishwaniketan firmly believe that education has no boundaries. The best possible learning experience provided to the student helps them transform themselves into ideal global

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citizens. Vishwaniketan believes not only in this philosophy but has also taken major positive steps towards achieving this goal by implementing international programs. CTIF Global Capsule (www.ctifglobalcapsule.com) after making phenomenal global contribution in IPR based research, product development; has paved way for promoting transformation in Indian engineering education through project-based learning (PBL). The educational practice followed at Vishwaniketan is the blend of traditional as well as Project Based Learning (PBL). Such a practice is an excellent example not only to the institutes which are affiliated to any of the universities but to institutes who are also looking to adapt the necessary changes to tune up with the current needs of engineering education. Project based learning philosophy has been welcomed by many Indian institutes which focus on learning through projects. The fundamental idea is to develop professionally trained human resource for India by involving them in complex problem solving and technology development process.

I hope this programme appeals you and an educational objective within, we invite you to extend your cooperation for this programme.

Dr. Vikas Shinde

Director, PBL-COE, Vishwaniketan

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About Vishwaniketan-CTIF network

Vishwaniketan is a brain child of a CTIF Global Capsule which has offices in 22 countries. Vishwaniketan is an educational non-profit trust established in 2012-13. Its sole objective is to establish itself as centre of excellence in education. Currently, it runs Engineering, Architecture & Design professional courses. Institute has its educational philosophy developed on Project Based Learning philosophy & practice. Institute has developed four different PBL models which have been practiced in its institutions since inception.

Engineering & Architecture courses are affiliated to University of Mumbai & approved by competent statutory bodies, whereas design course is affiliated to Teesside University, UK. Vishwaniketan has collaborations with 16 International Universities through which it has been connected globally. In last 4 years institute has sent over 800 students from and across India to International universities. We aim to create competent design professionals who can create novel products and solve social and National issues keeping global context in mind.

We at Vishwaniketan have been involved in creating and successfully implementing following National and International Programmes:

- I. It has created PBL Centre of Excellence which works for PBL Training and consultancy. So far, through PBL-COE; six institutes have been trained to implement PBL & more than 63 workshops have been arranged & headed by PBL-COE Team. This way PBL-COE has created pathway towards transforming traditional institutes into PBL Institutes.
- II. It has a unique UG fellowship programme through which 800+ Indian students along with 190 teachers have received International exposure. Vishwaniketan is one of a kind institute which have successfully demonstrated the experience of handling International Programmes.
- III. Vishwaniketan is the only institute in Mumbai University which has received European Project Grant worth 80 Lac Rupees for its project which focuses on capacity building of Indian institutes. Our team has been instrumented to work in International work dynamics.
- IV. Currently, Vishwaniketan has started M.S. & Ph.D. programme with three International Universities.
- V. Vishwaniketan, although a young institute has past work experience to handle both National & International Projects. It has earned its name for its coveted Project Based Learning philosophy & expert practice. Vishwaniketan has created teams who can work for its vision & handle projects efficiently to deliver its outcomes within specified time.

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About PBL-COE

I Dr. Vikas V Shinde, on behalf of entire PBLCOE team wholeheartedly welcome and invite you to read further.

In the backdrop of the situation discussed in the preface, in year 2009-10, I got an opportunity to pursue my PhD at Aalborg University (AU), Denmark UNESCO Chair in PBL; which is a pioneer institute to implement PBL since 1972. My, PhD was fully sponsored by European Union's Erasmus Mundus Mobility for Life grant. There, I got an excellent opportunity to study closely Aalborg PBL model. The reason to pursue PhD in PBL is to start the change process to shift from traditional teaching-learning practice to PBL practice. Initially the thought was to design PBL model for India but I soon realised that Indian Education system is too complex, that one model cannot serve the purpose. Thus, PBL models which can be implemented by any Indian Institutes are developed and its impact is assessed. In the years, 2014, I was awarded PhD in PBL, at that time, I was the first PhD in India to receive PhD from UNESCO chair in PBL, Aalborg University Denmark.

Then, I continued my experiments with PBL and carried out my passion by creating training programmes and modules for teachers and students. In view of strengthening our PBL activities, we created PBL- Centre of Excellence. I currently work as Director PBL COE and lead team of PBL practitioners and trainers.

Role of PBLCOE in Vishwaniketan is to design and coordinate PBL models practice in the institute. Our role is to make sure that our educational experience is at par with global needs of engineering education. We work with various stakeholders to make sure that our educational model is in tune with changing needs of engineering education. Our thoughtfully designed PBL practice is well accepted by students and parents. In a short span of time, we have become a reason to inspire institutes to become PBL institutes. PBL approach is a wonderful educational strategy to build the profile of the students, teachers and Institute.

Thus, we invite you to become one of the few institutes in India to embrace and practice PBL.

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Project Based Learning: What and Why?

Project Based Learning is also popularly known as Problem based learning, initially originated in the McMaster University Canada (1968), in Roskilde (1972) and Aalborg University (1974) Denmark. The PBL model focuses on challenging students to solve open ended problems, which are pre-selected to align with learning objectives of the program. Such problem solving requires considerable self-learning of the students to reach to the problem solution thus making learning student centred. Students can direct their learning and learn through experience which they gain while solving problems. Students' learning is also augmented by traditional teaching and supporting infrastructure like group rooms, smart classrooms, library and well equipped laboratories to support problem solving. Since, the PBL problems are challenging enough to the individuals, thus the group of 4-5 students are asked to work together to solve problem. This leads to peer to peer learning. It is proven that PBL leads to deep learning and enhanced performance level in the traditional as well as project examinations. PBL also leads to improved skill levels of students leading to better employability.

In ViMEET, the essential characteristics explained above are adapted to suit Indian educational environment. The staff members of various departments here are trained for the development of PBL models. Also, themes like Industry based Value Addition Programmes, Under-graduate fellowship programmes; industry-institute interface model and ViMEET incubation centre are practiced in line with PBL principles. Students are also prepared for evaluation and supported for their academics and placements. This ViMEET PBL models is implemented by many institutes in India and supported by 16 international universities across the globe. Thus, students are getting exceptional exposure to groom them for global market place. This model works well for affiliated colleges; autonomous or private universities can rip many more advantages of PBL from the fact that they have authority to frame their curriculum. This additional advantage for such institutes/universities can lead to preparation of classical University level PBL models such as Aalborg University, Denmark, Coventry University, UK or Purdue University, USA. Indian universities and autonomous institutes can compete with their global counterparts and place them in the world ranking with the aid of PBL.

In the Project based learning, curriculum development process is based on the current problems. Thus, students receive latest and authentic knowledge required to solve the problem. Students in PBL environment learn problem solving and design skills during the process the process of problem solving. Thus, it promotes novel technology and product development which is essentially need for strengthening start up India & the make in India.

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Capacity Development Process for staff and Students

It is important to note that PBL practice has origin in Europe, whose culture is different than Indian culture. Also, PBL is not rooted in Indian Education system. Surprisingly none of the universities is practising PBL to its fullest possible extent. This may be because institutes don't have human resources which can practice PBL effectively. Also, there is a lack of understanding in PBL philosophy; for example most of educators think doing projects is PBL; in fact it is not. Thus, there is a need to for Training Educators on PBL philosophy and practice. Such training will create awareness among staff about PBL practice. Once the staffs are trained on PBL philosophy they can develop different PBL models suitable for their Institute based on its educational culture. Thus, PBL philosophy will remain same however practice is customised to suit the local culture.

After models being developed, its necessary to implement PBL in the institute, this is a PBL practice and teachers who implements is a PBL practitioner. During and after implementation it is essential to see the impact of PBL on students learning and skills, thus research on impact of PBL is initiated. We call this as PBL research and the teacher who conducts is a PBL researcher. Thus, research gives an opportunity to reflect what worked and what did not. Also, the PBL models and practice gets refined every cycle.

Once sufficient PBL Practice and research is being done, we believe that Institute can sustain PBL practice by themselves. From our past, experience we have learned that PBL practice and research in two consecutive cycles can establish a culture, however sustaining that culture becomes an issue. To overcome this, we identify teachers who have implemented and researched PBL in right manner with right attitude; we identify them as PBL trainers. These identified trainers then continue to guide and sustain PBL practice in the institute.

It's the students, who are the most important beneficiary of the PBL practice, thus students counselling for PBL is essential. Our team will conduct staff training and students counselling for PBL practice. We have experienced that during PBL practice staff and students come up with good projects which have potential for patent, publication or start-up, our team will identify these projects. These identified staff, students and projects then will be further trained on business modelling, patent and publication work. Same cycle will be repeated twice in one academic year. In both cycles, at every stage, Institute needs to prepare documents like notice, recordkeeping, list of projects, achievement etc. which will also prepare them for accreditation.

After first successful cycle, we will be starting training on writing joint proposals for European Union programmes.

It's essential for the institute management and teachers to take a call, where they are committed for this process. The following table can be seen as a guideline for achieving measurable outcomes listed in the last page.

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Annexure “A” Capacity Development Programme for staff and Students

1st Cycle

Before start of the semester	Activity 1	Two days introductory Workshop on PBL	Needed for Sustainability of PBL and for effective implementation	100% Administrators and Teachers training Selection of two subjects for Implementation
	Activity 2	Two days Teacher's training for Building Course Level PBL model	Needed for effective implementation	Course Level PBL model design with story board Assessment and Evaluation Plan
	Activity 3	One day Teachers Training on PBL and outcome assessment	Needed for NAAC and NBA Also, for PBL assessment and Evaluation	Attainment calculations and Matrix
	Activity 4	Teacher's PBL model Presentations	First comments on PBL models	PBL Pitch Preparation
	Activity 5	Final PBL model Presentation	Final Review on PBL pitch	PBL Pitch
	Activity 6	Two day Workshop on Research in PBL	Needed for documentation to find effectiveness of PBL	Introduction to Research in PBL Data collection Strategies
First Two weeks of the semester	Activity 7	Students counselling	100 % students counselling for career prospects through PBL	Students awareness about Importance of PBL
During the second- third week of the semester	Activity 8	PBL Pitch – Presentations by PBL Teachers in the class	Classroom presentation is needed to understand PBL Practice	Students awareness about PBL implementation and assessment
After One Month	Activity 9	First review on CLPBL	Two days depending on number of courses	Documentary checking Students Feedback
After One Month	Activity 10	Second review on CLPBL	After One Month after first review	Documentary checking Students Feedback
At the end of the semester	Activity 11	PBL day- Project Exhibition	One day per department	Evaluation of PBL models and students presentations on their work

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				Identification of Potential Start Up Ideas
After the end of the semester	Activity 12	Research and Academic Outcome assessment and Mapping	Full day	Creating documentary evidences Feedback Suggestions of the new designs
	Activity 13	Research Paper/ patent/ Business proposal Writing	Intellectual Property	Starting PBL research Culture and entrepreneurship
	Activity 14	Attainment calculations	For NBA	Outcome Mapping and attainment calculations File for NBA/NAAC
	Activity 15	Boot camp Training	For staff and students	Incubation Process starts on Identified Projects or New Ideas

*Similar process will be executed for the 2nd cycle.

Other con-current activities to be conducted

Sr. No	Name of Activity	Resource Person	Time Required	Participants
1	4 Days Interaction Session with students & Teachers for Business Club , Presentation	Dr. S. S. Inamdar & Team	4 Days	Students , Faculty
2	Review Meeting with Principal & Management	Team from Vishwaniketan	2 Days in the semester	Faculty & Administrators
3	Continuous Assessment Norms	Team from Vishwaniketan	2 Days	Faculty & Administrators
4	Business Club Meetings	Dr. S. S. Inamdar & Team	Every Month	Students ,Faculty

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Suggestive list of Courses offered

Course Number	Title	Duration
C01	Stepping towards Problem and Project based Learning: Introductory workshop	Two day
C02	Design of Course Level PBL models for the affiliated Institutes	Two day
C03	PBL for Outcome Based Education: NBA or NAAC	Two day
C04	Assessment and Evaluation in PBL	One day
C05	Improving effectiveness of PBL	Two day
C06	Integration of ICT tools in PBL	One day
C07	Writing and Reviewing PBL Research Papers	One day
C08	Preparing for EU project: Processes and Documents	Two day
C09	Patent Filing and Application Process	One Day
C10	Boot Camp- Business Modelling Training	Two Day
C11	Preparing Business Pitch	One Day

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Measurable Outcomes and Benefits

Measurable Outcomes (MO)	Nature of Outcome
MO1	100% Teachers Training on PBL
MO2	100% Students Training on PBL
MO3	Conduction of 11 workshops
MO4	Identifying 10% teachers as trainers for future sustainability
MO5	Research Papers on PBL and technology
MO6	Training of Interested Teachers and students on Business Modelling
MO7	Identifying 10 potential start up and Business Pitch
MO8	Writing future joint European project proposal.
MO9	Free Use of Vi-PBL Android Application for assessment of the projects
MO9	Training to conduct business club meetings

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Memorandum of Understanding (Sample COPY)

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is made on this -----, 2019 BY
AND

BETWEEN

CTIF-Vishwaniketan- Network, Kumbhivali, Tal. Khalapur Dist. Raigad

And

-----, an entity incorporated/registered under the provisions of the
Maharashtra University Act 1994/B1 having its registered office at -----
-- , (herein after referred to as "-----" which expression shall mean and include unless
repugnant to the context or meaning thereof, its successors and permitted assigns) of the
Other Part.

CTIF Vishwaniketan Network and -----are hereafter referred to individually as "Party" and
collectively as "Parties".

A. Responsibilities the Institute (-----):

1. Institute will send minimum 3 faculty members for PhD programme in our partner universities abroad with 50% sponsorship. This will help institute to grow the PBL culture and excellence after 1 year period of agreement.
2. Complete freedom for implementation of Activity Plan, Project based learning cycles (Training +Project reviews + exhibition), Internal Assessment Norms, rules/regulations of attendance requirement for students needs to be given to the academic leadership.
3. The management will support in spirit the activities like academic calendar, course files, time table design etc. which is essential to create academic discipline in students and teachers for the final outcome of creating an excellence in the campus.
4. The CTIF-Vishwaniketan Network has mandate of empowerment of students and teachers. This will help in development of the institute, a big way. Generally after one year of joint activities, good and potential teachers become fear-free. These teachers actually develop the institute to a great extent. Appropriate pay scales will have to be implemented in the institute, without which the vision cannot be successful beyond a limit. The decision can be made suitably at convenience of management.
5. It will be necessary for teaching and non-teaching staff to work in a particular specific method to imbibe PBL. It is responsibility of CTIF-Vishwaniketan Network officer on duty to train them. Once the management is convinced after series of discussions, there should not be any constraint on the academic leaders to work.
6. To provide industry available in your contact for projects, testing, research and consultancy.

B. The responsibility of CTIF-Vishwaniketan Network will be:

- a) To provide international exposure to student/ teachers of the institute through programs like UG Fellowship, Master and PhD programmes.
- b) To Guide, train the academic leadership, faculty and students so that PBL vision will be implemented meaningfully in the network institute.

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- c) To create policy environment for academic discipline, innovation and transparency in teaching-learning practices.
- d) To demonstrate every activity, programmes, etc. for the first year so that the institute faculty will be ready to take up the vision ahead.
- e) To provide opportunities of collaboration on conferences, fellowships etc. in foreign universities of excellence.
- f) Help the director/principal to prepare proposals for financial requirements of the activities, which may be approved by the management, well before the activity, after discussions.
- g) To provide experienced/trained faculty for smooth conduction of activities till the institute is ready by itself.

Finance- Terms and conditions

- The costs for the training, guidance and Human Resource for conducting all activities as mentioned in Annexure "A" is Rs. 60,000/- per month from date of signing MoU to be paid on monthly basis.
- The cheques/NEFT/RTGS to be drawn in favour of *Vishwaniketan, iMEET*. Bank Name: *Bank of India*, IFSC Code : *BKID0001201*, Account Type : *Current*, Account No. *120120110000059*
- Bus/Train/Air travel for the trainers to be borne by the institute.
- Suitable arrangement of local travel, Lodging and Boarding to be made by the institute.

C. ACTIVITIES /Assignments of CTIF- Vishwaniketan Network officers:

1. Activities will be implemented step by step according to previous experience and local requirement.
2. PBL cycles/project exhibitions/trainings to be conducted as per the academic and administrative conditions prevailing at that time.
3. The time table, Academic calendar etc. would be required to be adjusted suitable to PBL vision.
4. Activities in details to be conducted in a typical semester are attached as annexure "A"

D. TERM AND TERMINATION

This MOU comes into force from the day of signing by the last Party. The term of this MOU is one year from the last Party signing hereof. This MOU will terminate if either Party defaults in performance of its obligations and responsibilities stated herein above. Either Party may terminate this MOU by giving sixty (60) days prior written notice to the other Party.

E. DISPUTE RESOLUTION

1. If any disputes, controversies or differences arise between the Parties hereto out of, or in relation to or in connection with this MOU, or for any breach thereof, the same shall be if possible settled amicably and promptly by mutual consent of the Parties. If such disputes,

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controversies or differences cannot be settled between the Parties, they shall be finally settled by arbitration in accordance with the arbitration laws and rules prevailing in India. The award rendered by the arbitrator(s) shall be final and binding upon all the Parties. Any such arbitration proceeding shall be held in Mumbai. This MOU shall be subjected to the exclusive territorial jurisdiction of Bombay courts.

F. GENERAL

- a. Third Party Right: No person who is not a party to this MOU shall have any right to enforce any terms of this MOU.
- b. Notice: Notices and other communications required or permitted pursuant to this MOU, shall be in writing and shall be delivered personally, or by prepaid registers mail, or sent by confirmed facsimile transmission to the other Party, or by use of professional overnight courier service, at the addresses set forth above.
- c. Amendment: This MOU contain the entire agreement and understanding between the Parties. No amendments or modifications to this MOU shall be effective unless made in writing and signed by authorized representatives of the Parties.
- d. This MOU including the exhibits annexed hereto supersede all prior agreements, representations and understandings, written or oral, between the Parties and constitute the complete agreement and understanding between the Parties unless modified in writing, signed by both Parties.

IN WITNESS WHEREOF, the Parties hereto, each acting under due and proper authority, have executed this MOU as of the date written above

FOR CTIF-Vishwaniketan Network

FOR -----,-----

Signature

Signature

Name:

Name :

Witness 1:

Witness 1:

Name:

Name:

Signature

Signature