Research Project No. RP02712

Title: DEVELOPING VIRTUAL AND PHYSICAL TEACHING MODELS FOR MATHEMATICS LABORATORY.

Tender Document

Background

A group of faculty members in IIT Delhi is engaged in a project with a state Govt educational organisation to enrich the teaching and learning practices in Mathematics for I to XII standards in schools.

As a part of this initiative, there is a mandate to develop *concept maps* of the school Mathematics as per the NCERT syllabus. These maps should be comprehensive enough to be adopted in the mainline teaching in the state run schools. Apart from the manual use of the maps, the architecture of the maps should be amenable for adoption on a technology platform suitable for deployment using web, computers and tablets. The purpose of these maps is to give a total picture of the topic being taught and learnt. Also, it should be possible to emphasise on the learning difficulties faced commonly by students in a given topipc.

Scope of the work

The following elements need to be developed for grades 9 to 12;

- **Maps**
    - Chapter wise concept maps
    - Strand wise maps
- **Hard Spots**
    - Chapter wise hard spots and its remediation
- **Technology Platform**
    - Suitable technology platform to hosts the Maps and the Hard Spots

Development Process

Subsequent to the award of the contract,the organisation developing these elements would ensure the following;

- **Expert validation**
    - The maps have to be first vetted by a group of experts .

- **Teachers validation**
    - After expert's validation, the maps have to vetted by a representative group of teachers of the state government. The teachers need to endorse the efficacy of these maps.
- **Classroom Trials**
    - Sample classroom trials need to be undertaken to validate the comprehension of the maps and the hard spots with respect to representative group of students of the government schools.

Formats of Deliverables

These maps and hard spots have to be made available in the following formats;

- **Technology Platform**: The organization has to develop and load all the maps and hard spots on a technology platform which can run on open source environment (Both Web driven and Offline). It should be possible to download and print all content from the platform.
- **Portable Format**: Technology platform used should be such that it should be possible to load and operate all the content on a portable device (DVD/dongle) for easy transfer and use in stand-alone offline mode.
- **Language**: All the elements used i for grades 9- 10 would be bilingual(Hindi & English) and for grades 11 & 12,English would suffice.

Requirement for Selection of the Organization

The following are the mandatory requirements for the selection of the organization;

- **Organisation background**: Private organizations / NGOs / educational institutions who have a proven record in areas of pedagogy development related to Mathematics in 10+2 schooling system, learning designs, educational technology and experience of working with government schools.
- **Working brief**: The nature of work being of non-routine nature and an in depth conceptual understanding of teaching pedagogy very essential. The organization needs to provide a comprehensive brief of philosophy, working principles, working level plan and associated pedagogy.

- **Requirement of Sample work:** The organization is required to demonstrate its relevant expertise by submitting the following along with its proposal:

    1. Concept maps on any two mathematical topics, one each from class XI and XII.
    2. Hard Spots with remediation, for the chapters whose concept maps are being provided.
    3. One Strand map for any strand that runs from IX standard to XII standard.
    4. All sample work should be submitted in soft and hard copy formats.
    5. Proof of any previous work undertaken in class room intervention, curricular development, pedagogical processes etc.

- **Costs**; The organization has to bear all costs of development of maps, hard spots and technology platform, including validations from experts group of teachers and students.

Terms of the Engagement

1. The candidate organisation should have minimum of 10 years experience in any of the areas related to educational technology/activity like educational enrichment activities, teaching and learning material development related to school education in 10+2 system.
2. The entire project has to be completed in a time frame of 4-6 months.
3. The proposals will be first evaluated on the technical ability.
4. Only those found technically suitable will be considered for further evaluation.
5. The project committee reserves the right to reject any or all proposals without assigning any reason.
6. No costs will be reimbursed for the development of sample work
7. The proposal should include:
    a. Organisation background & experience
    b. Working level plan
    c. Sample Work as detailed above

Method of Submission of Proposals: Proposals / Quotations should be sent in a sealed separate cover marked **technical** and **commercial** bids at the top along with our NIQ reference no. and due date,

Please send your proposals as per above details so as to reach the following address on or before **September 9, 2013, 5:30pm**.

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