APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

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No. KTU/RESEARCH 4/3171/2020

Thiruvananthapuram

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Dated: 28.08.2020

CIRCULAR

Sub:- APJ Abdul Kalam Technological University - Virtual Lab to enrich Technology Enabled Learning at the University - Collaboration with NITK Surathkal - Request to submit Expression of Interest - Reg

Ref :- Email dated 25.05.2020 from Dr. K V Gangadharan Participating Institute Co-ordinator, The Virtual Lab, NITK Surathkal

Dr. K V Gangadharan, Participating Institute Coordinator - Virtual Labs, NIT Karnataka, Surathkal vide reference (1) above, had approached the University to partner with the Virtual Lab initiative of MHRD in which NITK Surathkal is a participating Institute and to enroll affiliated colleges as nodal centres of Virtual Lab.

Subsequently the University discussed the matter with NITK Surathkal and it was decided to accept the proposal in principle and to request the Colleges affiliated to the University to partner with the same by signing an Expression of Interest (EoI) with NITK Surathkal.

Hence the Colleges affiliated to this University are hereby requested to sign Expression of Interest with NITK Surathkal with one faculty as the Single Point of Contact for the same. The colleges shall send the originals of EoI to Dr. K V Gangadharan, Participating Institute Coordinator - Virtual Labs, NIT Karnataka, Surathkal, duplicates to the Director (Research) of the University and keep the triplicates with themselves.

The message and documents received from NITK Surathkal regarding establishment of Virtual Labs are attached herewith for reference.

Dr. Baiju B *
REGISTRAR (IN CHARGE)

To

1. All Colleges affiliated to this University
2. Public Relations Officer (for publishing the same)
3. PS to VC / PS to PVC / PA to Registrar / PA to Dean (Academic) / PA to CE

* This is a computer system (Digital File) generated letter. Hence there is no need for a physical signature.

About Virtual Labs

Virtual Labs project is an initiative of the Ministry of Human Resource Development (MHRD), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT). This project is funded by MHRD and driven by eleven participating institutes to create and maintain a web based remote, virtual solution for UG/PG/research students as well as teachers of engineering and sciences in learning laboratory/practical based subjects, in a way similar to what NPTEL aims to do for theoretical subjects. Virtual Learning can considerably improve the academic and on the job performance of students with regard to technical subjects through better understanding of core concepts and its allied practical applications. Virtual Labs offer students an opportunity to learn at their comfortable pace, place and period (time). This facility also offers students the freedom to experiment or play with what in a real lab could be a costly equipment or resource that he or she will be getting access for a very short span of time and that too with several operational restrictions. The platform has undergone consistent refinement over a decade of evolution from being a web based experimentation platform to a comprehensive learning tool for science and engineering subject with broad theoretical explanations, video-lectures and provisions for self-evaluation. Moreover, Virtual Labs will serve as a very handy resource for students and faculty members in the ongoing shift of academic activities to digital platforms forced by the COVID-19 pandemic in handling the practical subjects, which has been the biggest challenge for all of us during this paradigm shift.

NIT Karnataka, Surathkal, Mangalore is one of the participating institutes which is engaged in development, maintenance and outreach of this novel initiative of MHRD through collaboration with higher educational institutions in the region. NITK Surathkal can formally engage such interested AICTE/UGC recognized institutions as the Nodal Centres of Virtual Labs project and offer periodic training and support to the faculty members who are further required to handhold their students to make best use of the Virtual Labs portal in their academic pursuit. Competent students and faculty of nodal centres can also propose and engage in development of new labs on this platform as part of their internship or major projects and thus contribute to the venture and garner recognition. Credible performance in contributing to Virtual Labs project in lieu of outreach and development would be rewarding in terms of improving the colleges' rating in various accreditation and ranking procedures.

The mandated facility requirements for a Virtual Labs Nodal Centre is very basic and the key resources engaged will be the faculty members. A nodal centre will be required to have one faculty as a Nodal Centre Coordinator and the sub-coordinators from individual departments. This core team shall be the driving agents in incorporating virtual learning of lab courses in the pedagogy of the institution and also to organize workshops on Virtual Labs for the students and faculty on a routine basis. There are no financial liabilities for the institutions involved by being a nodal centre of this project. The nodal centres will be required to submit semester-wise activity reports to MHRD through NIT Karnataka, Surathkal to validate their performance as a nodal centre.

In this context, it is aspired that KTU enrolls all its affiliated engineering colleges as Nodal centres of Virtual Labs, a prestigious initiative of MHRD, Government of India towards virtual learning. All Principals are encouraged to positively submit the Expression of Interest to be a nodal centre of Virtual Labs project to NIT Karnataka, Surathkal. Through this association, all students and faculty of the Nodal Centres will have the advantage of directly engaging with one of the most reputed Centrally Funded Technical Institutions in South India through potential activities pertaining to the Virtual Labs project.

You may get in touch with the Virtual Labs Team under Dr. K. V. Gangadharan, Participating Institute Coordinator (PIC) of the Virtual Labs Project and the Head of Centre for System Design (CSD), the transdisciplinary centre for research and development at NIT Karnataka, Surathkal. The Expression of Interest format is enclosed in this communication as well. In case of queries regarding the project or the formalities, you are requested to reach out to the team via email to solve@nitk.edu.in.

VIRTUAL LABS

National Co-0rdinator: IIT DELHI

Participating Institute: National Institute of Technology Karnataka (NITK) Surathkal

(An Initiative of Ministry of Human Resource & Development

Under the National Mission on Education through ICT)

Expression of Interest for setting up Virtual Lab Nodal Center

ELIGIBILITY:

1. The Institute should be a Central, State University or Institute / College approved by AICTE/UGC.
2. The Institute has to fulfill a minimum requirement of providing a designated / common lab space having **25 PCs or more** with Min **1 Mbps internet broadband connection are having minimum 1 GB RAM** and a multimedia projector.
3. The 3306, 5900, 5902 and 8700 ports should be open in case of any proxy/firewall on internet connection.
4. http://www.java.com/en/download/index.jsp can be downloadable through the internet and Gmail should be accessible.
5. There will be no financial liability on any party for Virtual lab facility. It is free to use.
6. One Nodal Coordinator for the Virtual labs should be nominated by the Director/Principal at the respective Nodal Centre.
7. The Virtual labs are available for five branches of Engineering and sciences which are as follows : ECE, EE, CSE/IT, ME, Applied Sciences (Physical Sciences & Chemical Sciences). Discipline wise Nodal sub-coordinators should be appointed at the college / Institute level additionally.
8. The Institute would also designate a faculty for each Virtual lab offered in the current semester. The designated faculty will be trained on the respective virtual lab, and would be awarded **a Virtual Lab Training Certificate** at the end of the session.
9. A monthly progress report regarding VLab usage by the students has to be submitted by the Nodal Coordinator to the participating institute co-ordinator (PIC), SOLVE lab, Centre for System Design(CSD) NITK, Surathkal (Email: solve@nitk.edu.in), duly signed by the Director/Principal of the

College. The report after the mandatory processing will be forwarded to Virtual Labs IIT Delhi.

10. Nodal coordinator will attend the Virtual lab meetings held at the Participating Institute as per schedule.
11. Any changes in the nomination of NC/Sub-NC should be informed immediately.
12. The attached form duly filled and signed by Head of the institute should be submitted at the earliest by Email. Original shall be documented by the institution for future reference.

Contact Details

Dr. K V Gangadharan
Participating Institute Co-ordinator (PIC)
SOLVE The Virtual Lab @ NITK Surathkal
First Floor, Centre for System Design
Old Physics Block
NITK Surathkal
Mangalore – 575025

Email : solve@nitk.edu.in
Phone(Off) : 0824-2473915

Contd…

Form for Expression of Interest

1. **Name of the Institute** ……

2. **Address** ……

   ……

3. **Affiliated to** ……

4. **AICTE / UGC Approval** ……

5. **Branch of Engineering/Science** **Student Strength**

   a) ECE/EE

   b) CSE/IT

   c) ME

   d) Civil Engineering

   e) Applied Sciences

   (Physical Sciences & Chemical Sciences)

6. **Name of the Director / Principal** ……

7. **Name of the Proposed Nodal**

   Coordinator ……Dept……

   Contact details (Mail ID and Contact number)

   ……

8. **Certified that**

   a) The Institute is recognized by AICTE / UGC.
   b) The Institute has necessary and adequate infrastructures.
   c) Strict adherence to the standard laid down lab Procedures and Cyber Security Laws will be followed.

d) Virtual Labs connectivity can be withdrawn / stopped without giving any prior notice or reasons.
e) This EOI for Virtual Labs usage is valid up to 31st March 2021, if not got renewed thereafter by us.

Date
Signature of the

Head of the Institute

(Official Stamp)

The Vision

To enrich the learning experience through experiential learning of science, engineering and technology in a virtual learning environment at the learner's preferred pace, place and period (time).

Objectives

1. To provide remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs would cater to students at the undergraduate level, post graduate level as well as to research scholars.

2. To enthuse students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.

3. To provide a complete Learning Management System around the Virtual Labs where the students can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self evaluation.

4. To share costly equipment and resources, which are otherwise available to limited number of users due to constraints on time and geographical distances.

Salient features

www.vlab.co.in

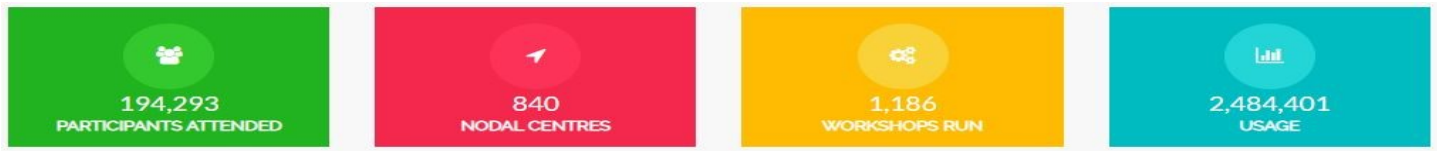
1. Virtual Labs will provide to the students the result of an experiment by one or a combination of the following methods
   - •Modeling the physical phenomenon by a set of equations and carrying out simulations to yield the result of the particular experiment. This can, at-the-best, provide an approximate version of the 'real-world' experiment.
   - •Providing measured data for virtual lab experiments corresponding to the data previously obtained by measurements on an actual system.
   - •Remotely triggering an experiment in an actual lab and providing the student the result of the experiment through the computer interface. This would entail carrying out the actual lab experiment remotely.
2. Virtual Labs will be made more effective and realistic by providing additional inputs to the students like accompanying audio and video streaming of an actual lab experiment and equipment.

Broad Areas of Virtual Labs

ঌ Electronics and Communication Engineering ঌ Computer Science and Engineering ঌ Electrical Engineering ঌ Mechanical Engineering ঌ Civil Engineering ঌ Chemical Engineering ঌ Biomedical and Biotechnology Engineering ঌ Chemical Sciences ঌ Physical Sciences

The portal has 100+ Practical Lab Courses comprising of 700+ Experiments across branches

The development, maintenance and outreach of Virtual Labs is led by 12 Participating Institutions and their associated Nodal Centres



About National Institute of Technology Karnataka, Surathkal (NITK Surathkal)

Established in 1960 as Karnataka Regional Engineering College and elevated as a National Institute of Technology in 2002, NIT Karnataka Surathkal is ranked 21st among Engineering Institutes of India by MHRD as per the National Institutions Ranking Framework. With 14 teaching departments and 12 supporting centres, the institution hosts to the academic pursuits of over 6000 students and also caters to various research and development needs of the industry as well as government bodies. Elevated as an Institution of National Importance with the NITSER Act of 2007, NITK Surathkal has a legacy of being one of the most sought after institutes of higher education in the country.

Centre for System Design (CSD)

CSD is a transdisciplinary centre for research and development at NITK Surathkal working on the needs of governments, industry and academia to address technological and design challenges that transcends traditional boundaries of standalone disciplines to build robust engineering systems. CSD has undertaken several projects for government bodies, public sector underakings, academic institutions and other industrial organisations. Areas of projects undertaken include

UAV and ROV Technologies
Sound and Vibrations
Smart Material Applications
Product Development
Systems and Networking
Experiential Learning
Technical and Management Consultancy

Virtual Labs, with its inception dating back to the last decade, is the first large scale interdisciplinary project with MHRD funding undertaken by the Centre for System Design. NITK Surathkal is the sole NIT among the Participating Institutes of Virtual Labs. With the institute level initiatives codenamed as SOLVE (Student Online Laboratory for Virtual Experimentation), NITK Surathkal has developed several labs on the Virtual Labs platform comprising of over hundred experiments from the areas of Mechanical Engineering, Civil Engineering and Electrical Engineering. NITK Surathkal also supports over 85 institutions that have partnered as our Nodal Centres through the outreach activities of Virtual Labs initiative.

For more information about the projects and initiatives of Centre for System Design, follow us on:

/csd.nitk

/csd_nitk

To be a Nodal Centre of Virtual Labs project, reach out to us at solve@nitk.edu.in

www.vlab.co.in