Swami Keshvanand Institute of Technology,
Management & Gramothan

Approved by AICTE, Ministry of HRD, Government of India
Recognized by UGC under Section 2(f) of the UGC Act, 1956
Affiliated to Rajasthan Technical University, Kota

Virtual Lab
(2021-22)

: RAMNAGARIA (JAGATPURA), JAIPUR-302017 (RAJASTHAN), INDIA
: +91-141-5160400, 2752165, 2759609 | : 0141-2759555
: info@skit.ac.in | : www.skit.ac.in

Swami Keshvanand Institute of Technology, Management and Gramothan, Jaipur

An MHRD Govt of India Initiative

(Virtual Labs-Nodal Centre)

Yearly Report (2021-2022)

Centre of Excellence

(in collaboration with IIT Delhi & Ministry of Human Resource & Development-Govt. of India)

Table of Content

1. Introduction

Centre of Excellence-Virtual Labs

It is an initiative by Ministary of Education Under the National Mission on Education through ICT that will provide to the students the result of an experiment by one of the following methods (or possibly a combination)

- 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.
- 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.

Objectives of the Virtual Labs:

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.

2. SKIT Centre of Excellence Virtual Labs (Annexure-1):

The SKIT Virtual Labs-Nodal Centre was founded in January 2019 in association of IIT Delhi & MHRD, Govt. of India with an objective to inculcate basic knowledge of robotics among the members, to undertake laboratory experimental work as a part of learning process and to organize competitions to develop competitiveness among students. Virtual Labs main focus is to deliver practical knowledge to its members which are need of the era. SKIT has consecutively running Virtual Labs-Nodal Centre for the past three years.

3. Centre of Excellence MoU with IIT Delhi

Virtual Labs
An initiative of Ministry of Education
under the National Mission on Education through ICT

Virtual Labs
An MoE Govt of India Initiative

Wireless Research Lab, Bharti School of Telecom
Indian Institute of Technology Delhi, Hauz Khas, New Delhi-11 0016. Tel: 011-26582050
www.vlab.co.in

Ref. No.: **VLABS/IITD/NCS** Date: **26-07-2021**

To,
The Principal,
Swami Keshvanand Institute of Technology, Management & Gramothan,
Jaipur, Rajasthan

Sub: Virtual Labs Nodal Center

With reference to your Expression of Interest for Virtual Labs, it gives me immense pleasure to designate your Institute as a Nodal Center for Virtual Labs. As nominated by you, **Mr. Ajay Kumar Dhanopia** has been accepted to act as the Nodal Coordinator from your Institute. This approval is valid up to 31st December 2021. Subject to the following Terms and Conditions and any subsequent directives as issued by MoE from time to time:

1. Approved status of AICTE/STEB/UGC is mandatory for your college.
2. The necessary infrastructure (dedicated space having personal computers with 1Mbps broadband internet connectivity) to be maintained at your own cost for Virtual Labs.
3. Nodal centers will get operational technical support.
4. Students are not to be charged any extra fee for providing Virtual Labs facility for their usage.
5. Nodal Coordinator should attend the meeting held at IIT Delhi as per schedule and a semester wise report of V Labs usage and feedbacks by the faculty members and students should be submitted.
6. Strict adherence to the standard lab procedures and cyber security laws needs to be followed.
7. Any violation or the above will result in automatic cancellation of Nodal Center status for your college without giving any notice.

Kindly acknowledge the receipt of this letter and the acceptance of the Terms & Conditions mentioned above.
We thank you again for your interest in the Virtual Labs project and appreciate your endeavor in the service of the student community.
Wish you all the best!
Thank You,
Sincerely,

Prof. Suresh Bhalla
Project Virtual Labs
IIT Delhi
sbhalla@civil.iitd.ac.in

Expression of Interest for 2022-2023

Virtual Labs
An MoE Govt of India Initiative

Expression of Interest for setting up Virtual Labs' Nodal Centre (NC)

Name of the Institute: Swami Keshvanand Institute of Technology, Management & Gramothan Acronym of Institute: SKIT

Address: Ramnagaria, Jagatpura, Jaipur.

Pin Code: 302017

Latitude: 26.8826°N Longitude: 75.8659°E

Affiliated to: Rajasthan Technical University, Kota

Approved By (AICTE/UGC/University): AICTE

Approval Number: 1-6015551 AISHE Code: C-25123

Branch of Engineering / Science:	Student	Faculty Members
a) CSE / IT	1203	58
b) Mechanical Engg.	447	44
c) ECE / EE	902	62
d) Civil Engg.	405	23
e) ~~Applied Sciences~~ (Basic Human Science)	842	38
f) Any Other (MBA)	112	7
Total:	3911	232

Name of the Head of Institute / Principal: Dr. Ramesh Kumar Pachar

Email: principal@skit.ac.in Mobile: 9461184807

Proposed Nodal Centre Coordinator (NCC): Ajay Kumar Dhanopia

Email: ajay.dhanopia@skit.ac.in Mobile: 9928909235

Department: ME

It is certified that

a) The institute is recognized by the AICTE/UGC.

b) The institute has necessary and adequate infrastructure to host the Virtual Labs.

c) Strict adherence to standard lab procedures and cyber security laws will be followed.

d) Virtual Labs may withdraw/stop connectivity without giving any prior notice or reasons.

e) This EOI for Virtual Labs usage is valid up to 31st December 2022 and requires renewal by the coordinating institute for continued support.

Signature & Stamp
Head of Institute / Principal

PRINCIPAL
Swami Keshvanand Institute of Technology, Management and Gramothan
Ramnagaria (Jagatpura), Jaipur 302017

Date: 27.07.2022

3. List of Members-Notice

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

CIRCULAR

SKIT/OFFICE/2021/ 1257 Date: 24.09.2021

Following faculty/staff members are appointed as coordinators/members of various activities for the session 2021-22. This will be effective immediately.

S.No.	Name	Department/ Designation	Role/Responsibility/Duty
20	Dr. Neha Purohit	English	Coordinator, Toastmasters Club
21	Dr. Anupriya Singh	English	Chief Editor, SKIT Times
	Ms. Sheeba Anjum	English	Editor, SKIT Times
22	Dr. Savita Choudhary	DMS	Convener, IPR Cell
	Dr. Praveen Kr. Jain	ECE	Co-Convener, IPR Cell
	Dr. Rishi Vyas	Physics	
23	Dr. Amber Srivastava	Mathematics	Coordinator, Skill Development Cell
	Dr. Neha Purohit	English	
24	Dr. Praveen Kumar Jain	ECE	SPOC-Sponsorship AICTE/DST etc.
25	Dr. Archana Saxena	Chemistry	Coordinator, E-Cell (TOPAZ)
	Dr. Maneesha Kaushik	MS	Member
26	Mr. M.K. Beniwal	CS	Chief Coordinator, Alumni Association
	Dr. Neha Purohit	English	Coordinator
	Dr. Ashish Nayyar	ME	Member
	Mr. Anirudh Mathur	CE	Member
	Mr. Sarfaraz Nawaz	EE	Member
	Mr. Mehul Maharishi	IT	Member
	Dr. Monika Mathur	ECE	Member
	Dr. Atul Gupta	MS	Member
27	Dr. Archana Saxena	Chemistry	Convener, UHV & Ethics Committee
	Dr. Nidhi Sharma	English	Member
	Dr. Anurag Sharma	Chemistry	Member
	Mr. B.S. Sharma	Dy. Registrar	Member
	Mr. Pradeep Sihag	Chief Warden	Member
28	Mr. Ajay Dhanopia	ME	Nodal Coordinator-Virtual Lab
	Mr. Nikhil Kumar Sharma	CE	Member
	Ms. Garima Gupta	CS/IT	Member
	Ms. Priyanka Sharma	ECE	Member
	Mr. Mohd. Imran	EE	Member
	Dr. Raj Kumar	ME	Member
	Mr. Rajiv Kumar	I Yr.	Member
29	Mr. Praveen Saraswat	ME	Coordinator, E-Yantra Lab
	Mr. Ankit Vijay	EE	Member
	Mr. Ankit Agarwal	ECE	Member
30	Mr. Ankit Kumar	CS	Coordinator, Centre of Excellence (IOT)
31	Mr. Anirudh Mathur	CE	Coordinator, Centre of Excellence (Transportation Engg.)

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Swami Keshvanand Institute of Technology, Management & Gramothan
Ramnagaria (Jagatpura) Jaipur-17

SKIT/Office/2019/ 959

Date: 06-02-2019

NOTICE

We are happy to announce that our Institute has been selected as a **Nodal Center** for **Virtual Labs** in collaboration with **IIT Delhi**. It is a scheme supported by MHRD, Govt. of India. **Mr. Ajay Kumar Dhanopia**, Assistant professor in the Department of Mechanical Engineering has been appointed as the **Nodal Coordinator**. He will coordinate with the IIT Delhi for all future activities.

IIT Delhi will provide all operational technical support in the establishment of the nodal center. They will also train our faculty and students. The first workshop in this regard will be held on February 16, 2019 at 9.00 a.m. for the students of B. Tech. I year. More workshops will be held later on for students of B. Tech. II and III years.

The following faculty members who have given their consent have been appointed as Departmental Coordinators for coordinating activities in their respective departments.

(I) Ms. Garima Gupta-CS Department

(II) Mr. Sushant Kumar-IT Department

(III) Ms. Priyanka Sharma-EC Department

(IV) Mr. Arun Kumar Nayak-EE Department

(V) Dr. Omji Shukla-ME Department

(VI) Mr. Anirudh Mathur-CE Department

(VII) Mr. Anurag Sharma- B. Tech. I year

All the Departmental Coordinators should remain in touch with Mr. Dhanopia for future activities in their respective departments.

S. L. Surana

(Dr.S.L.Surana)
Director (Academics)

Copy to:-

1. Director
2. Principal
3. Registrar
4. Advisors
5. All HODs-EC,EE,CS,IT,ME,CE,MS,Phy,Chem,Math,English
6. Mr. Ajay Kumar Dhanopia
7. All Departmental Coordinators
8. File

4. Introductory Workshop on Virtual Labs

Swami Keshvanand Institute of Technology, Management & Gramothan,
Ramnagaria, Jagatpura, Jaipur-302017, INDIA
Approved by AICTE, Ministry of HRD, Government of India
Recognized by UGC under Section 2(f) of the UGC Act, 1956
Tel. : +91-0141- 5160400 Fax: +91-0141-2759555
E-mail: info@skit.ac.in Web: www.skit.ac.in

Name of the event: One Day Workshop **on** Virtual Labs
Date of the event: 29th July 2021
Venue of the event: Google Meet @ SKIT, Jaipur

Glimpse/s of the event

About the event: Virtual Labs experts for this workshop were Mr. Prateek Sharma (Sr. Field Engineer WRL-IIT Delhi) and Mr. Shivam Sundaram (Field Engineer WRL-IIT Delhi). Total of 223 participants attended this workshop. Workshop was started by welcome speech by Dr. Dheeraj Joshi-Head of ME Deptt. SKIT, Jaipur. First session was held by presentation followed by demonstration of stream wise laboratories experiments. Workshop was ended by distributing certificates to the participants. Mr. Ajay Kumar Dhanopia Nodal Coordinator, Virtual Labs, SKIT Jaipur delivered a vote of thanks.

एसकेआईटी में एक दिवसीय लैब वर्कशॉप का आयोजन

P3 Police Public Politics

जयपुर । स्वामी केशवानंद इंस्टीट्यूट आफ टेक्नोलॉजी मैनेजमेंट एंड ग्रामोत्थान (एस.के.आई.टी) रामनगरिया, जगतपुरा जयपुर में एक दिवसीय वर्चुअल लैब, आई आई टी दिल्ली के सहयोग से आयोजन हुआ। वर्कशॉप के मुख्य अतिथि आई आई टी दिल्ली के फील्ड विशेषज्ञ प्रतीक शर्मा एवं शिवम सुंदरम थे। वर्कशॉप के दौरान बताया गया कि कोरोना की इस महामारी के दौरान वर्चुअल लैब विशेषत: प्रैक्टिकल्स को समझकर करने में मील का पत्थर साबित हुआ वर्कशॉप का मुख्य उद्देश्य विद्यार्थियों में जिज्ञासा जगाकर प्रयोग करने को उत्साहित करना है वर्चुअल लैब्स एक संपूर्ण लर्निंग मैनेजमेंट सिस्टम प्रदान

करता है जहां छात्र अतिरिक्त वेब - संसाधन, वीडियो व्याख्यान ,एनिमेटेड पर दर्शन और आत्म मूल्यांकन सहित सीखने के लिए विभिन्न उपकरणों का लाभ उठा सकते है। संयोजन अजय कुमार धनोपिया नोडल समन्वयक वर्चुअल लैब ने किया। वर्कशॉप के अंत में प्रोफेसर धीरज जोशी जी विभागाध्यक्ष यांत्रिक विभाग ने विशेषज्ञों एवं प्रतिभागियों का आभार व्यक्त किया।

एसकेआईटी में एक दिवसीय लैब वर्कशॉप का आयोजन

जयपुर (का.सं.)। स्वामी केशवानंद इंस्टीट्यूट ऑफ टेक्नोलॉजी मैनेजमेंट एंड ग्रामोत्थान (एस.के.आई.टी) रामनगरिया, जगतपुरा जयपुर में एक दिवसीय वर्चुअल लैब, आईआईटी दिल्ली के सहयोग से आयोजन हुआ। मुख्य अतिथि आईआईटी दिल्ली के फील्ड विशेषज्ञ प्रतीक शर्मा एवं शिवम सुंदरम थे। वर्कशॉप के दौरान बताया गया कि कोरोना की इस महामारी के दौरान वर्चुअल लैब विशेषत: प्रैक्टिकल्स को समझकर करने में मील का पत्थर साबित हुआ। वर्कशॉप का मुख्य उद्देश्य विद्यार्थियों में जिज्ञासा जगाकर

प्रयोग करने को उत्साहित करना है। वर्चुअल लैब्स एक संपूर्ण लर्निंग मैनेजमेंट सिस्टम प्रदान करता है, जहां छात्र अतिरिक्त वेब -संसाधन, वीडियो व्याख्यान, एनिमेटेड पर दर्शन और आत्म मूल्यांकन सहित सीखने के लिए विभिन्न उपकरणों का लाभ उठा सकते हैं। संयोजन अजय कुमार धनोपिया नोडल समन्वयक वर्चुअल लैब ने किया।

Media coverage of the event (if published)

Name or contact number of event coordinator:- Mr. Ajay Dhanopia : 9928909235

One Day State Level Workshop on Virtual Labs

(15th Feb, 2022)

A State-Level Workshop on Virtual Labs was organized on 15th Feb., 2022 at SKIT for faculty members of different Engineering and Polytechnic Institutions from (ECE, ME, CE, CSE & EE) by Virtual Labs team, IIT Delhi and supported by MHRD Govt. of India. Virtual Labs mentors for this workshop were Mr. Ashish Ranjan, Mr. Ashish Mudgal & Mr. Prateek Sharma. Total of 41 faculty members attended this workshop. Workshop was started by welcome speech by Mr. Ajay Kumar Dhanopia-Nodal Coordinator, Virtual Labs, SKIT Jaipur. After this, mentors from Virtual Labs IIT Delhi, were presented flowers by Dr. S. L. Surana-(Director Academics). Director Academics said few words regarding the importance and utility of Virtual Labs in current academics. First session was held by presentation followed by demonstration of stream wise laboratories experiments. Hand on session was covered in post lunch session on Virtual Labs of exploring different laboratories experiments. Workshop was ended by distributing certificates to the participants.

Ajay Kumar Dhanopia

Nodal Coordinator-Virtual Labs

Associate Professor-Dept. of ME

SKIT, Jaipur

One Day State Level Workshop on Virtual Labs-Brochure

ABOUT SKIT

Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT) inspired from the learning of Swami Keshvanand, was established in the year 2000 by Technocrats andManagers Society for Advanced learning. Today the institute is recognized as one of the centers of academic excellence in northern India. The Institute is affiliated to Rajasthan Technical University (RTU), Kota for offering postgraduate and undergraduate courses in engineering and management. SKIT is putting in efforts for making industry ready engineers and managers through effective Industry-Institute interface. SKIT has been declared 1st Rank by RTU for 2nd consecutive year The institute is also accredited byNBA and IE(I).

ABOUT VIRTUAL LABS

Virtual Labs are web-based platforms for conducting experiments via simulation. They are intended to provide remote access, encourage faculty and students for performing experiments and thereby getting them interested in their respective disciplines in a meaningful way. A consortium of 12 participating institutes, nationally coordinated by IIT Delhi is engaged in design and development of Virtual labs for a range of subjects in different disciplines. Web enabled experiments can be designed for remote operation and viewing so as to enthuse the curiosity and innovation into students. This would help students in learning basic and advanced concepts through remote experiments.

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.

BROAD AREAS OF VIRTUAL LABS

- Electronics & Communications
- Computer Science & Engineering
- Electrical Engineering
- Mechanical Engineering
- Chemical Engineering
- Biotechnology and Biomedical Engineering
- Civil Engineering
- Physical Sciences
- Chemical Sciences

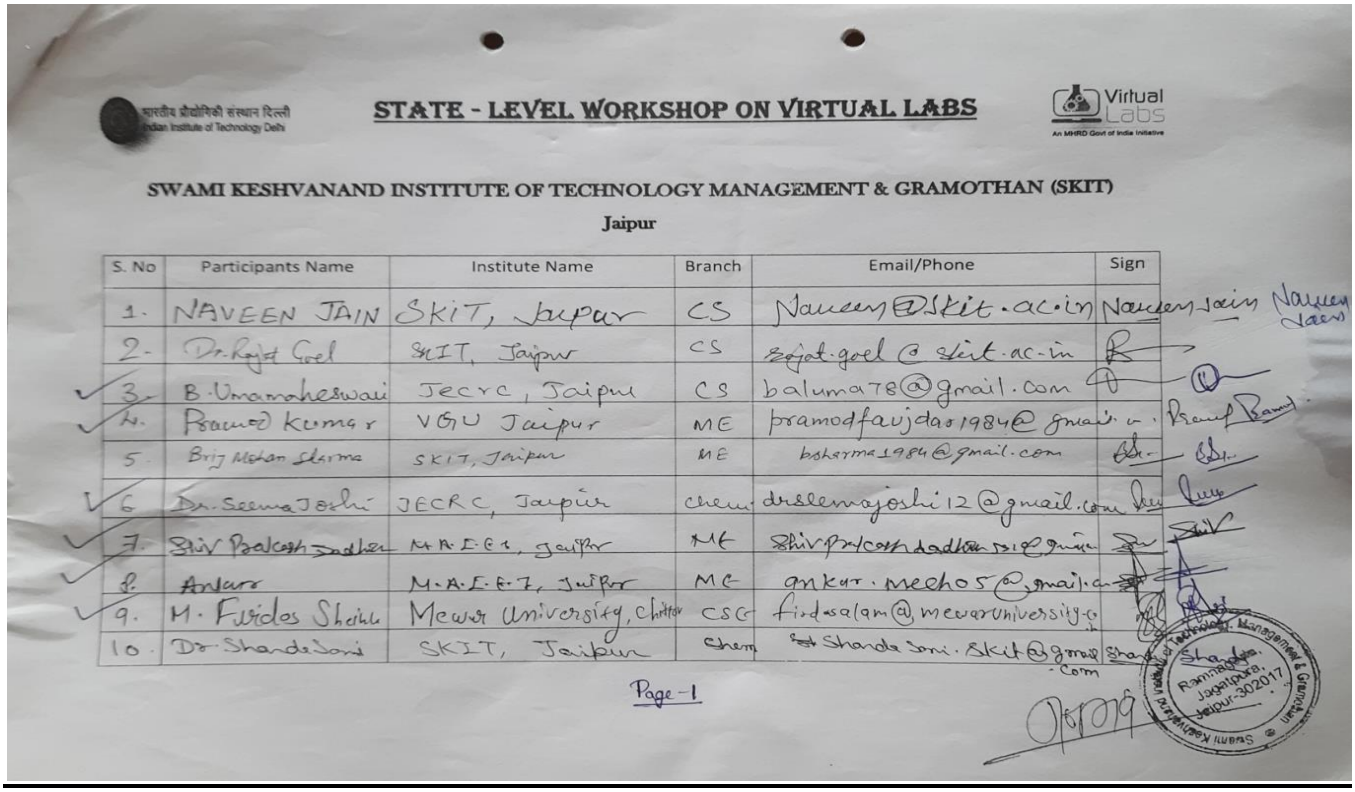
SALIENT FEATURES

1. Virtual Labs will provide to the students the result of an experiment by one of the following methods (or possibly a combination)

- 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.

Participants Attendance Sheet



भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

STATE - LEVEL WORKSHOP ON VIRTUAL LABS

Virtual Labs
An MHRD Govt of India Initiative

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY MANAGEMENT & GRAMOTHAN (SKIT)

Jaipur

S. No	Participants Name	Institute Name	Branch	Email/Phone	Sign
1.	NAVEEN JAIN	SKIT, Jaipur	CS	Naveen@skit.ac.in	Naveen Jain
2.	Dr. Rajat Goel	SKIT, Jaipur	CS	rajat.goel@skit.ac.in	
3.	B. Umamaheswari	JECRC, Jaipur	CS	baluma78@gmail.com	
4.	Pramod kumar	VGU Jaipur	ME	pramodfaujdar1984@gmail.com	Pramod Kumar
5.	Brij Mohan Sharma	SKIT, Jaipur	ME	bsharma1984@gmail.com	
6	Dr. Seema Joshi	JECRC, Jaipur	chem	drseemajoshi12@gmail.com	
7.	Shiv Prakash Jadhav	M.A.E.E.T, Jaipur	ME	shivprakashjadhav531@gmail.com	
8.	Ankur	M.A.E.E.T, Jaipur	ME	ankur.mecho5@gmail.com	
9.	M. Firdos Shaikh	Mewar University, Chittor	CSE	firdosalam@mewaruniversity.co.in	
10.	Dr. Shanda Soni	SKIT, Jaipur	Chem	Shanda Soni.Skit@gmail.com	

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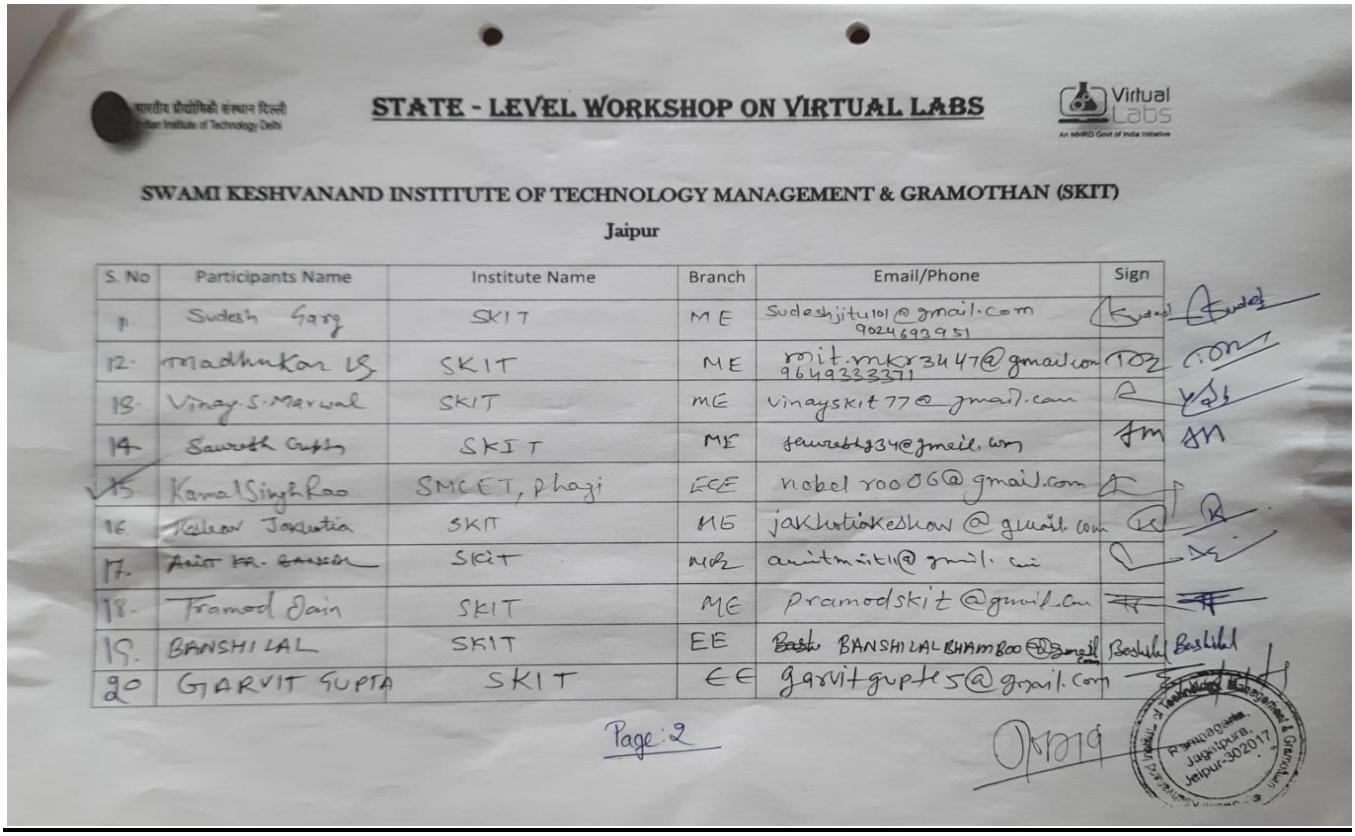

भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

STATE - LEVEL WORKSHOP ON VIRTUAL LABS

Virtual Labs
An MHRD Govt of India Initiative

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY MANAGEMENT & GRAMOTHAN (SKIT)

Jaipur

S. No	Participants Name	Institute Name	Branch	Email/Phone	Sign
11.	Sudesh Garg	SKIT	ME	Sudeshjitu101@gmail.com 9024693951	
12.	Madhukar US	SKIT	ME	rohit.mkr3447@gmail.com 9649333371	
13.	Vinay S. Marwal	SKIT	ME	vinayskit77@gmail.com	
14.	Saurabh Gupta	SKIT	ME	saurabh334@gmail.com	
15.	KamalSinghRao	SMCET, Phagi	ECE	nobel r0006@gmail.com	
16.	Kuleen Jakhotia	SKIT	ME	jakhotiakeshav@gmail.com	
17.	Amit Kr. Gaur	SKIT	ME	amitmittu@gmail.com	
18.	Pramod Jain	SKIT	ME	pramodskit@gmail.com	
19.	BANSHI LAL	SKIT	EE	BANSHI LAL KHAMRAO@gmail.com	
20	GARVIT GUPTA	SKIT	EE	garvitgupta5@gmail.com	

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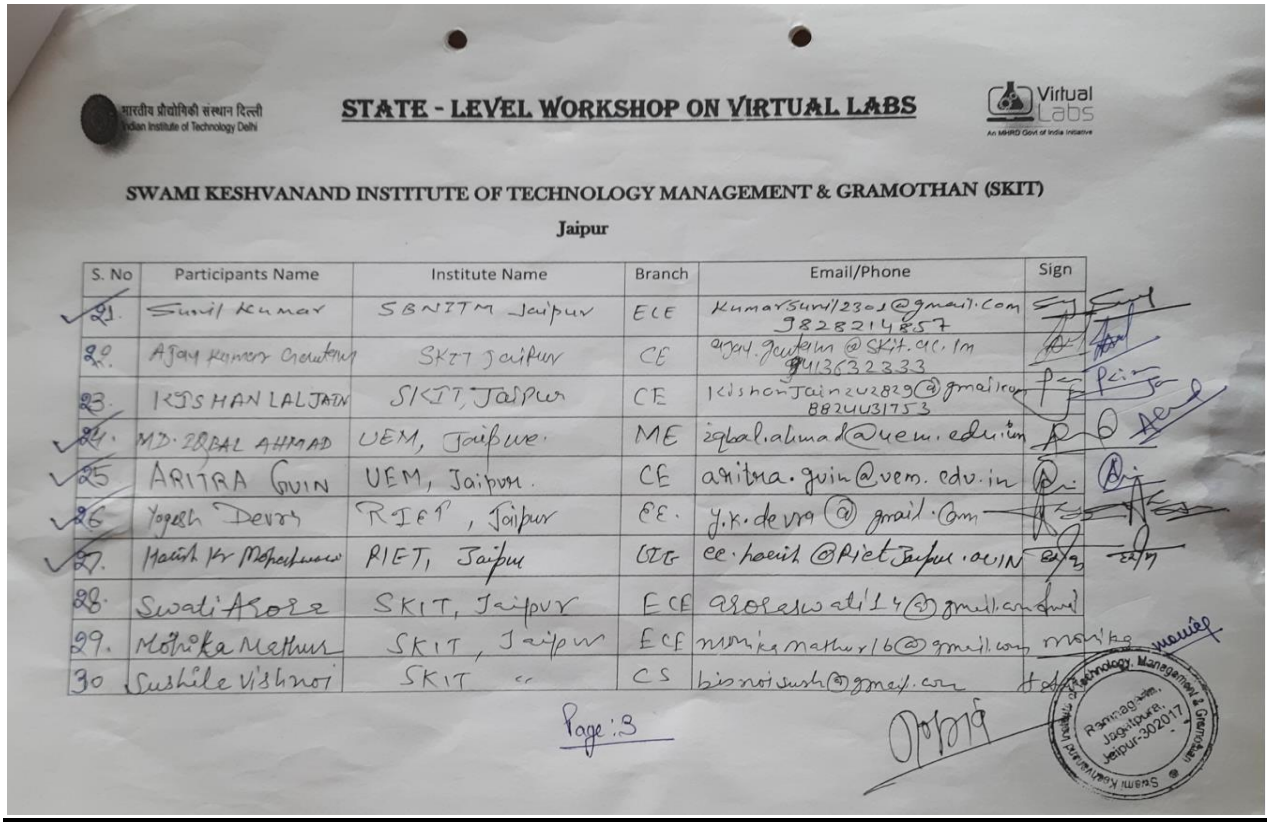

भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

STATE - LEVEL WORKSHOP ON VIRTUAL LABS

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SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY MANAGEMENT & GRAMOTHAN (SKIT)

Jaipur

S. No	Participants Name	Institute Name	Branch	Email/Phone	Sign
21.	Sunil Kumar	SBNITM Jaipur	ECE	Kumarsunil230@gmail.com 9828214857	
22.	Ajay Kumar Choudhary	SKIT Jaipur	CE	ajay.jeuken@SKit.ac.in 9413632333	
23.	KISHAN LAL JAIN	SKIT, JAIPUR	CE	kishonJain242829@gmail.com 8824031753	
24.	MD. IQBAL AHMAD	UEM, Jaipur.	ME	iqbal.ahmad@uem.edu.in	
25	ARITRA GUIN	UEM, Jaipur.	CE	aritra.guin@uem.edu.in	
26	Yogesh Devra	RIET, Jaipur	EE.	y.k.devra@gmail.com	
27.	Harish Kr Meghwanshi	RIET, Jaipur	EE	ee.harish@Rietjaipur.ac.in	
28.	Swati Agarwal	SKIT, Jaipur	ECE	agarwalswati14@gmail.com	
29.	Mohika Mathur	SKIT, Jaipur	ECE	mohikamathur16@gmail.com	
30	Sushila Vishnoi	SKIT "	CS	bishnoisush@gmail.com	

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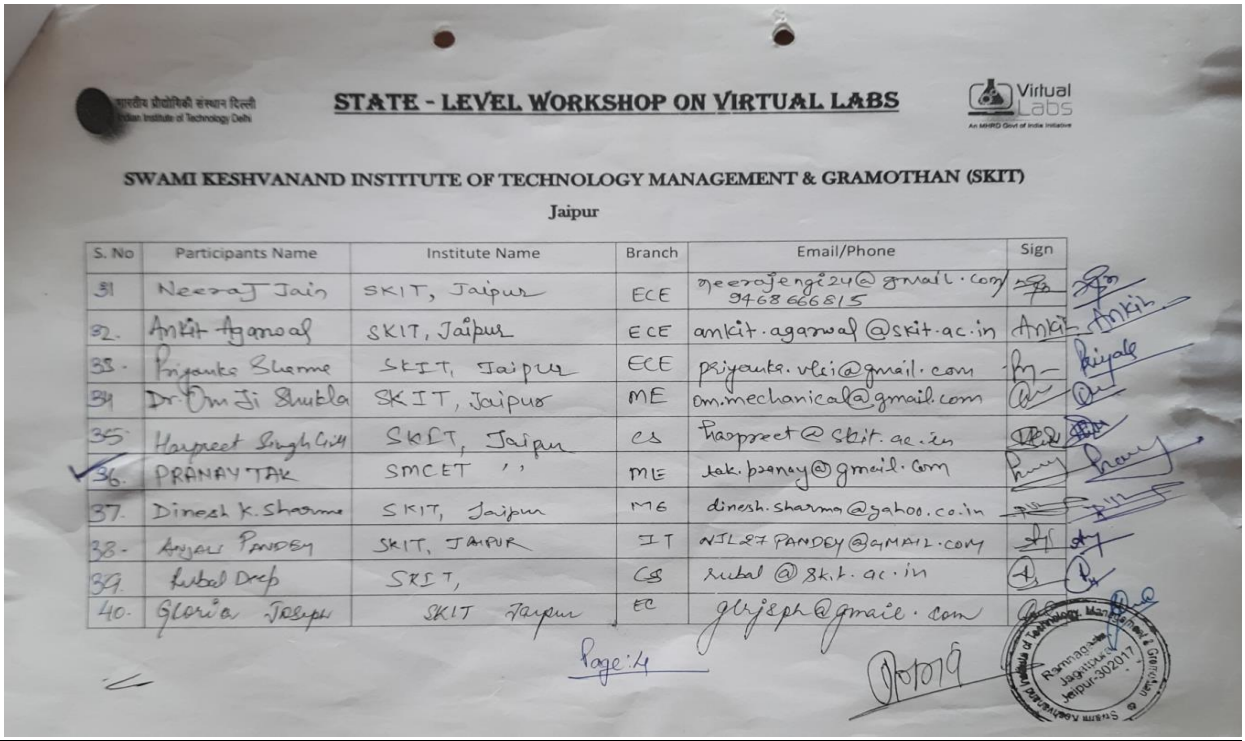

भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

STATE - LEVEL WORKSHOP ON VIRTUAL LABS

Virtual Labs
An MHRD Govt of India Initiative

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY MANAGEMENT & GRAMOTHAN (SKIT)

Jaipur

S. No	Participants Name	Institute Name	Branch	Email/Phone	Sign
31	Neeraj Jain	SKIT, Jaipur	ECE	neerajengi24@gmail.com 9468666815	
32.	Ankit Agarwal	SKIT, Jaipur	ECE	ankit.agarwal@skit.ac.in	Ankit
33.	Priyanka Sharma	SKIT, Jaipur	ECE	priyanka.vlsi@gmail.com	
34	Dr. Om Ji Shukla	SKIT, Jaipur	ME	om.mechanical@gmail.com	
35	Harpreet Singh Gill	SKIT, Jaipur	CS	Harpreet@skit.ac.in	
36.	PRANAY TAK	SMCET "	ME	tak.pranay@gmail.com	
37.	Dinesh K. Sharma	SKIT, Jaipur	ME	dinesh.sharma@yahoo.co.in	
38.	Anjali PANDEY	SKIT, JAIPUR	IT	ANJALI PANDEY@GMAIL.COM	
39.	Rubal Dhiman	SKIT,	CS	rubal@skit.ac.in	
40.	Gloria Joseph	SKIT Jaipur	EC	gljoseph@gmail.com	

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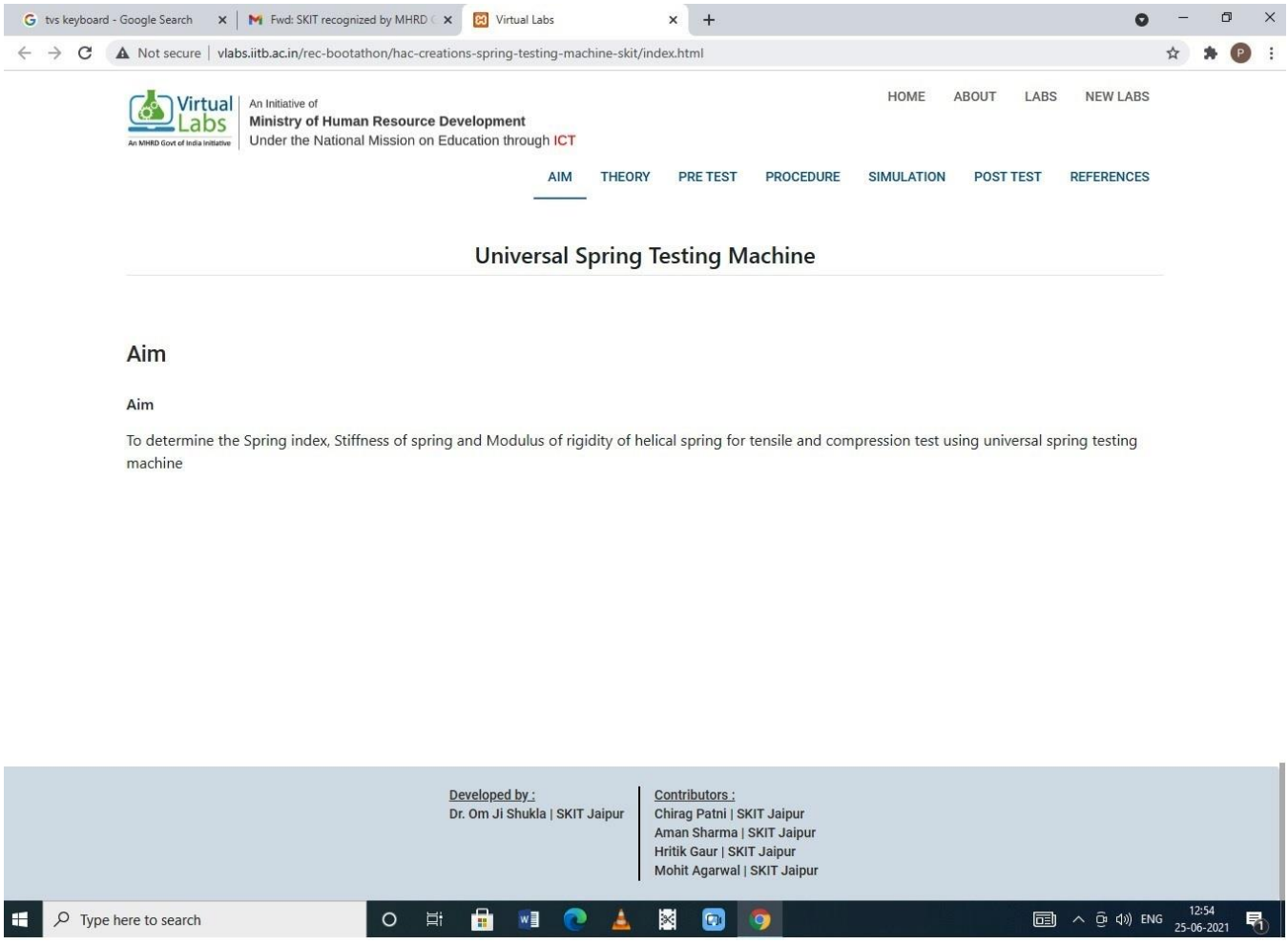
Achievements :

SKIT has been recognized by MHRD Govt. of India in association with IIT Bombay due to an experiment entitled "Universal Spring Testing Machine" developed by the Department of Mechanical Engineering. For more details - Click the below link:

http://vlabs.iitb.ac.in/rec-bootathon/hac-creations-spring-testing-machine-skit/index.html



Minutes of Meeting

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN

Minutes of Meeting

Date: 7/10/2021

Subject: To discuss on working plan for the Virtual Labs during the academic year 2021-2022.

Chaired by: Mr.Ajay Kumar Dhanopia-Nodal Coordinator-Virual Labs

Coordinators Present: Mr. Raj Kumar -Deptt. of ME, Mr. Mohd. Imran - Deptt. of EE,Ms. Priyanka Sharma - Deptt. of EC, Ms. Garima Gupta – Deptt. of CS, Mr. Rajiv – I Year.

Following points were discussed in the meeting:

1. Nodal Coordinator congratulated the departmental coordinators for the one day workshop held on Virtual Labs from **Thursday, 29th July 2021** during **1:00 - 2:30 p.m.** organized by SKIT in association with IIT Delhi and supported by MHRD Govt. of India.

2. Nodal Coordinator pointed out the following activity should be completed as soon as possible, if is not being started yet.

   - The concerned subject laboratories and related experiments specified in the current RTU, Kota B.Tech. III, V, and VII semester's syllabus but not performing in the present due to limited resources, are being identified. Since the same non-performing experiments of some labs have been found in Virtual Labs, So, these experiments must be conducted in Virtual Labs, as shown in the enclosed sheet.

   - Some subject laboratories and respective experiments that are not prescribed in the current RTU, Kota B.Tech. III, V, and VII semester's syllabus, but are available in Virtual Labs, are identified in the enclosed sheet and therefore these experiments must be performed in order to satisfy the criteria: experiments beyond the RTU syllabus.

   - It is the responsibility of the Laboratory coordinator and allocated faculty to ensure that each and every student has the opportunity to perform experiments on the virtual lab platform of the concerned lab.

   - Some of the labs and corresponding experiments mentioned by RTU, Kota are not available on Virtual Labs; therefore, the respective laboratory coordinator, with the help of the assigned faculty and a group of four students, will make an effort to develop the same experiments for the Virtual Labs as a team. So, respective Lab coordinators need to submit at least one new virtual laboratory/experiment based on current lab concepts.

Coordinators need to arrange meetings with laboratory coordinators and facultymembers and motivate them to implement the above mentioned points.

3. Nodal Coordinator said that MHRD will be monitored the number of labs/experiments performed by the number of students in the current academic semester. Next semester approval completely depends on the user's multiple index number (number of labs x number of experiments x number of students) so every department needs to make an effort to use Virtual Labs by maximum number of students during this current academic semester.

4. Nodal coordinator emphasized that every department must be improve their concerned subjects lab manuals by adding additional resources as like theory, working principle, procedure, prerequisite and post requisite questions, simulation and self evaluations features. It is executed only by incorporating additional required printouts for virtual labs experiments performed by the students with duly signed by faculty members and also clubbed together in current lab manual.

5. Ms. Garima asked about the execution of those experiments not consisting of the simulation part. The Nodal Coordinator suggested that those experiments need to be considered as study based experiments.

6. Nodal coordinator proposed the "State-Level Virtual Labs Workshop" for learning how to develop the new virtual labs experiment at Institute level in upcoming months of this current academic year.

7. Nodal coordinator asked to the departmental coordinators to submit the Virtual Labs progress report in a month.

8. Nodal coordinator asked to organize the virtual labs promotional activities like hackathon, quiz competition, seminar, workshop etc. at department level on a regular basis.

9. Nodal Coordinator focused to design and develop at least one virtual lab experiment on behalf of every department as also is given privilege in faculty PASS form for MM 10 marks. Experiments need to incorporate pedagogy, story writing and simulation parts for approval by the authorized agencies.

10. Nodal Coordinator asked to organize the virtual labs experiments during the laboratory scheduled time table or might be conducted in a separate time schedule into the department's computerlab.

Meeting was ended with thanks to the chair.

Ajay Kumar Dhanopia
Nodal Coordinator-Virtual Labs

Work Progress Report

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN

Department of Mechanical Engineering

Progress of Virtual lab activities in B.Tech III, V and VII semesters in academic session 2021-2022

1. **Identifying the common subject laboratories and respective experiments prescribed in current B.Tech. III, V & VII semesters syllabus of Rajasthan Technical University, Kota and also mentioned by Virtual Labs.**

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Machine drawing practice	1. 2.
	Materials Testing Lab	1. 2.
	BME lab	1. 2.
	Programming using MATLAB	1. 2.
B.Tech V Sem	Mechatronics Lab	1. 2.
	Heat Transfer Lab	1. 2.
	Production Engineering Lab	1. 2.
	Machine Design Practice I	1. 2.
B.Tech VII Sem	Thermal Engineering Lab-II	1. 2.
	FEM lab	1. 2.

2. **Identifying the subject laboratories and respective experiments prescribed in current B.Tech. III, V & VII semester's syllabus of Rajasthan Technical University, Kota but not performing in present due to limited resources. If same non performing experiments would be found in Virtual Labs so these experiments need to perform on Virtual Labs itself.**

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Machine drawing practice	1. 2.
	Materials Testing Lab	1. 2.

	BME lab	1. 2.
	Programming using MATLAB	1. 2.
B.Tech V Sem	Mechatronics Lab	1. 2.
	Heat Transfer Lab	1. 2.
	Production Engineering Lab	1. 2.
	Machine Design Practice I	1. 2.
B.Tech VII Sem	Thermal Engineering Lab-II	1. 2.
	FEM lab	1. 2.

3. **Identifying the subject laboratories and respective experiments not prescribed in current B.Tech. III, V & VII semester's syllabus of Rajasthan Technical University, Kota but unavailable in Virtual Labs so these experiments need to perform in account of beyond the syllabus.**

Semester	**Name of Labs**	**Name of Experiments**
B.Tech III Sem	Machine drawing practice	1. 2.
	Materials Testing Lab	1. 2.
	BME lab	1. 2.
	Programming using MATLAB	1. 2.
B.Tech V Sem	Mechatronics Lab	1. 2.
	Heat Transfer Lab	1. 2.
	Production Engineering Lab	1. 2.
	Machine Design Practice I	1. 2.
B.Tech VII Sem	Thermal Engineering Lab-II	1. 2.
	FEM lab	1. 2.

4. **Labs & corresponding experiments are mentioned by RTU, Kota but unavailable on Virtual Labs so all departmental will make an effort to develop the same experiments for the Virtual Labs as a team.**

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Machine drawing practice	1. 2.
	Materials Testing Lab	1. 2.
	BME lab	1. 2.
	Programming using MATLAB	1. 2.
B.Tech V Sem	Mechatronics Lab	1. 2.
	Heat Transfer Lab	1. 2.
	Production Engineering Lab	1. 2.
	Machine Design Practice I	1. 2.
B.Tech VII Sem	Thermal Engineering Lab-II	1. 2.
	FEM lab	1. 2.

5. Details of virtual labs based laboratories & respective experiments are pursuing in B.Tech III, V & VII semesters.

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Machine drawing practice	1. 2.
	Materials Testing Lab	1. 2.
	BME lab	1. 2.
	Programming using MATLAB	1. 2.
B.Tech V Sem	Mechatronics Lab	1. 2.
	Heat Transfer Lab	1. 2.
	Production Engineering Lab	1. 2.
	Machine Design Practice I	1. 2.
B.Tech VII Sem	Thermal Engineering Lab-II	1. 2.
	FEM lab	1. 2.

Work Progress Report-2

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN

Department of Mechanical Engineering

Progress of Virtual lab activities in B.Tech III, V and VII semesters in academic session 2021-22

6. Identifying the common subject laboratories and respective experiments prescribed in current B.Tech. III, V & VII semesters syllabus of Rajasthan Technical University, Kota and also mentioned by Virtual Labs.

Semester	Name of Labs (As per RTU)	Name of Experiments
B.Tech III Sem	Materials Testing Lab	Strength-of-Materials lab (Civil Engg.) 1. Izod Impact Test 2. Charpy Impact Test 3. Direct Shear Test on Mild Steel Rod 4. Brinell Hardness Test 5. Bending Test on Mild Steel 6. Rockwell Hardness Test 7. Vickers Hardness Test 8. Tensile Test on Mild Steel 9. Compression Test on Cast Iron 10. Torsion Test on Mild Steel 11. Creep test
B.Tech V Sem	Mechatronics Lab	1. Simulation and analysis of PID Controller 2. Working of Summing Amplifier
	Production Engineering Lab	Nil
B.Tech VII Sem	Thermal Engineering Lab-II	Remote Triggered Virtual Lab on Automotive Systems 1. Load Test on a SI Engine 2. Mechanical Efficiency of a SI Engine 3. Engine Health Monitoring by Vibration Analysis 4. Variation of Exhaust Noise with Engine Speed

7. Identifying the subject laboratories and respective experiments prescribed in current B.Tech. III, V & VII semester's syllabus of Rajasthan Technical University, Kota but not

performing in present due to limited resources. If same non performing experiments would be found in Virtual Labs so these experiments need to perform on Virtual Labs itself.

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Materials Testing Lab	1. Heat treatment process effect on hardness of steel 2. Micro structural preparation of different materials 3. Spring test
B.Tech V Sem	Mechatronics Lab	Nil
	Production Engineering Lab	Nil
B.Tech VII Sem	Thermal Engineering Lab-II	Nil

8. **Identifying the subject laboratories and respective experiments not prescribed in current B.Tech. III, V & VII semester's syllabus of Rajasthan Technical University, Kota but available in Virtual Labs so these experiments need to perform in account of beyond the syllabus.**

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Materials Testing Lab	Nil
B.Tech V Sem	Mechatronics Lab	1. Torque measurement using strain gauge 2. Temperature measurement using thermocouple, thermister and RTD
	Production Engineering Lab	**Metal Forming Lab** 1. To study the upset forging process and its applications. 2. To study the extrusion process and its applications.
B.Tech VII Sem	Thermal Engineering Lab-II	1. Engine Health Monitoring by Vibration Analysis 2. Variation of Exhaust Noise with Engine Speed

9. **Labs & corresponding experiments are mentioned by RTU, Kota but unavailable on Virtual Labs so all departmental will make an effort to develop the same experiments for the Virtual Labs as a team.**

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Materials Testing Lab	Nil
B.Tech V Sem	Mechatronics Lab	Nil
	Production Engineering Lab	Nil
B.Tech VII Sem	Thermal Engineering Lab-II	Nil

10. Details of virtual labs based laboratories & respective experiments are pursuing in B.Tech III, V & VII semesters.

Semester	Name of Labs	Name of Experiments
B.Tech III Sem	Materials Testing Lab	1. Izod Impact Test 2. Charpy Impact Test 3. Direct Shear Test on Mild Steel Rod 4. Brinell Hardness Test 5. Bending Test on Mild Steel 6. Rockwell Hardness Test 7. Vickers Hardness Test 8. Tensile Test on Mild Steel 9. Compression Test on Cast Iron 10. Torsion Test on Mild Steel 11. Creep test
B.Tech V Sem	Mechatronics Lab	1. Simulation and analysis of PID Controller 2. Working of Summing Amplifier
	Production Engineering Lab	**Metal Forming Lab** 1. To study the upset forging process and its applications. 2. To study the extrusion process and its applications.
B.Tech VII Sem	Thermal Engineering Lab-II	1. Engine Health Monitoring by Vibration Analysis 2. Variation of Exhaust Noise with Engine Speed

1. **Virtual Labs Usage Report**

Swami Keshvanand Institute
of Technology, Management & Gramothan

Approved by AICTE, Ministry of HRD, Government of India
Recognized by UGC under Section 2 (f) of the UGC Act, 1956
Affiliated to Rajasthan Technical University, Kota

SKIT/2022/475 DATE: 12-01-2022

VIRTUAL LABS REPORT

(July 2021 – December 2021)

Name of Nodal Center: Swami Keshvanand Institute of Technology, Management & Gramothan

Affiliated to: Rajasthan Technical University, Kota

Semester wise Virtual Labs usages

Number of Virtual Labs Experiments Performed: 155954

12/01/2022

Signature
Mr. Ajay Kumar Dhanopia
(Nodal Coordinator)

Signature
Prof. (Dr.) Ramesh Kumar Pachar
(Principal)

PRINCIPAL
Swami Keshvanand Institute of Technology,
Management and Gramothan
Ramnagaria (Jagatpura), Jaipur-302017

RAMNAGARIA (JAGATPURA), JAIPUR-302017 (RAJASTHAN), INDIA
Tel. 0141-3500300 , 2752165, 2752167, 2759609 | Fax : 0141-2759555
: info@skit.ac.in | : www.skit.ac.in

2. **Virtual Labs @ SKIT**

Prepared & Submitted by

Ajay Kumar Dhanopia
Nodal Coordinator-Virtual Lbas