Swami Keshvanand Institute of Technology,
Management & Gramothan

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Affiliated to Rajasthan Technical University, Kota

ICT e-SLATE Studio

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Swami Keshvanand Institute of Technology, Management and Gramothan, Jaipur

Digital Studio "electronic Smart Learning And Teaching Environment" (e-SLATE)

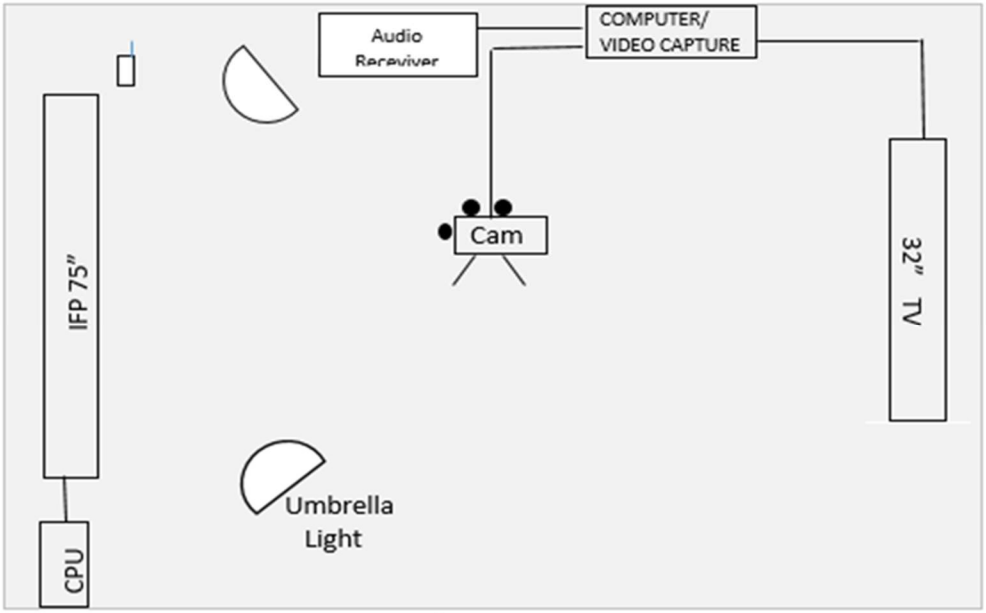
To prepare against challenges especially, in teaching point of view of recent orientation of entire education system towards digital means, it has become an essential need to prepare, Evolve and implement a suitable e-learning system in the Swami Keshvanand Institute of Technology, Management & Gramothan. Regarding this, we developed standard e-content (lecture recordings) for courses taught in different semesters of various engineering streams. This e-learning content which is created through three Digital Studios. These digital studios have been named as ICT e-SLATE 1, ICT e-SLATE 2, and ICT e-SLATE 3. In these digital studios platform we have recorded lectures of all subject of previous semester is about 2000 plus lectures and several online conferences/webinars/FDPs etc. held in studios.

Studio	ICT e-SLATE 1	ICT e-SLATE 2	ICT e-SLATE 3
Room Size	375 sq ft	275.5 sp ft	375.5 sq ft

Technical Specification

Description of the system:-

The system is intended to record classroom lectures using audio-video sources and for live lectures. These lectures have been recorded on suitable tapeless or file-based media. Camera is placed in front of "Newline Interactive Flat Panel (IFP)" of 75 inches which is mounted on a wall and connected to the CPU (i3/6thgeneration/500gb HDD/ DVD/ 4gb DDR3 Ram) one CPU is placed in each studio for IFP. This IFP work as monitor for desktop PC for presentation purpose as well as used as touch screen type digital data tablet. This Interactive flat panel is fully window-based educational setup as well as Android based with a superior touch.



General System Diagram

IFP Specification:-

Panel	75"
Display Area (mm)	1650.24(H)*928.26(V)
Aspect Ratio	16:09
Native Resolution	3840*2160 (4K)
Response Time	8ms
Refresh Rate	60 Hz
Voltage	AC 100-240V,50/6oHz
HDMI	480i,480p,720p,1080i,1080p
HDMI 1.4 & 2.0	x3 (2.0*2 in rear side. 1.4*1 in front)
MIC(Microphone)	x1
Operating System	None- Andriod build in ; OPS build in
OPS	Intel Standard OPS Slot support 4K@60HZ
Speakers	15Wx2
Chipset	3458
RJ45	Yes
USB	Type A - x2(3.0),x1(2.0) Type B - x2,for touch
OS Support	Windows, Mac
Front Connectors	2xUSB 3.0 For OPS,1xHDMI,1xTouch,1xMIC

Camera is placed in front of IFP is the main source of video capture. One camera is placed in each Studio which is connected through the video capture card installed in each computer systems and also separate computer system is placed in each studio for recordings (i7/9th generation/ 1 TB HDD/ 8 Gb DDR4 RAM). This video capture takes input from camcorder as video source and also takes audio input from audio receiver through AUX cable. The teacher is provided with a clip type wireless lavalier microphone. This lavalier microphone gives output to the audio receiver as input and this receiver gives output to the video capture card.

All these audio-video sources are to be routed to video capture card installed in computer. After that open broadcaster software (which we use for recording) called OBS installed on this computer which made all this audio-video as input source and record both of these in a single video format.

For that, we made setting in OBS. First, we add '+' source as video capture Device in software. Second, we add '+' source as audio input capture which filter noise in audio.

The combined output of selected audio and video have the provision to insert logo or any text information before they are recorded on media.

This video capture gives display output to the Television mounted on opposite wall of IFP which shows output of camera in lecture recording and live interaction in live class.

Camera Specification:-

Image Sensing Device	
CMOS Sensor	Total Pixel – 1/7.22cm, 3.09 megapixel Effective pixels - 2.91megapixel (2 136 x 1 362)
Focus	Auto/Manual
White Balance	Auto/Manual
Lens	
Magnification	Optical 20x Aperture - Round iris (consisting of 8 blades) Image stabilizer - Optical system (with dynamic mode)
Infrared camera support	YES
Panel	7.5cm, 460 000dots

	Electrostatic capacitive touch panel
Recording formats	AVCHD recording, MP4 recording (Dual recording, MP4 conversion, Slow & Fast motion recording)
Recording media	SD cards only (2 slots)
Terminals	XLR - YES (Provided on the handle unit) Others - HDMI-OUT / AV OUT / MIC / REMOTE / USB / Headphone
Handle unit	YES (XLR / IR light / mic holder / shoe / zoom lever / tally lamp / record trigger)
Battery pack / Compact power adapter	BP-820 / BP-828 CA-570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