VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd. u/s 3 of UGC Act 1956

Facilities to Support Research

1) Animal House

2) Central Instrumentation Centre

3) Media Centre

4) Research & Statistical Databases

Animal House

VIGNAN'S
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VFSTR ANIMAL HOUSE FACILITY

Vignan's Foundation for Science, Technology and Research (VFSTR) has established a well-equipped animal house facility with the vision to support the research and training on animals. The facility was approved by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Fisheries, Animal Husbandry and Dairying, Government of India, based on the inspection carried out by the CPCSEA Nominee on 11th November, 2018. The facility was inaugurated by the Honourable Chairman of VFSTR, Dr. Lavu Rathaiah on 16.12.2018. The types of animals housed are rats, mice, rabbits and chicken. Optimized housing conditions based on the CPCSEA guidelines are being maintained, such as, Temperature – 25 oC (maintained with air conditioners), Humidity – 60%, Pest control management, Fluorescent lighting, Power backup, Noise free environment, Separate experimental area and wash room and Separate storage area. The facility includes the equipment like autoclave, hot plate, incinerator and stereomicroscope. The animals are being taken care by a fully dedicated animal care taker. Research projects in the areas of Nutritional supplementation, Polyclonal antibody production, Maneuvering of Rejection of allograft, Isolation of T and B cells, Wound healing, Epigenetic modulation of gene expression, Diagnostic kits using raised IgY antibodies and Evaluation of immune potential of herbal extracts. The ongoing projects are:

1. A Mechanistic Approach for development of Multi-Class/Multi-Antigen Subunit Vaccine(s) and Assessment of Immunobiologic Response to Combat S.aureus Infections
2. Evaluation of anti-Outer membrane protein IgY of Shigella species
3. Construction and studies on vaccine potential of chimeric protein molecules comprising immunodominant regions of outer membrane proteins of enterobacteriaceae for application as broad spectrum vaccine against Salmonella, Shigella, E. coli and Proteus.
4. Studies to unfold the immunomodulatory attributes of Thymus vulgaris using Balb/c mouse model system
5. Evaluation of acute oral toxicity, acute dermal toxicity, in vivo antioxidant, anti-diabetic and diabetic wound healing properties of polyherbal formulation
6. Studies on Anti-inflammatory activity of Tinospora cordifolia on Carrageenan or LPS induced-inflammation in Sprague Dawley rat model

Government of India
Ministry of Environment, Forest and Climate Change
Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA)
5th Floor, Vayu Block, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi

CERTIFICATE

This is to certify that the Animal House Facility of Vignan Animal House Facility, Guntur, Andhra Pradesh has been registered with CPCSEA for Research for Education purpose and Breeding for in-house use on Small Animals bearing registration number 2046/PO/ReBi/S/18/CPCSEA.

The registration is valid for five years from 11/12/2018 to 10/12/2023.

(Jerome Minz)
Deputy Secretary (AW) & Member Secretary (CPCSEA)

JEROME MINZ
Member Secretary (CPCSEA)
Min. of Environment, Forest & Climate Change
Government of India
Jor Bagh Road, New Delhi

CODE OF ETHICS FOR ANIMAL HOUSE

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1. We all know that in many research protocols there is simply no alternative to the use of live animals. To develop the research from the available non-animal or *in vitro* models to clear justification in the biology (Drug discovery and physiology of Human system), someone need to work on the animals.

2. All the experiments and protocols performed in the animal house should be performed under the high supervision of an individual who is having adequate training and relevant experience in animal handling.

3. The use of the animals in the biological research should always enhance the human and animal health for a good society.

4. Animal selection for a particular experiment is the major consideration. The supervisor who is working should maintain the animal selection and experiment protocols in that particular project.

5. All the animals, which were procured for the experimental research, are lawfully acquired. The animals utilized in the experiment should be minimized as much as. The investigator has to take whole responsibility to avoid pain, stress and discomfort to the animal.

6. If a procedure will cause more than momentary slight pain or distress to the animal, the pain must be minimized both in intensity and duration through the administration of

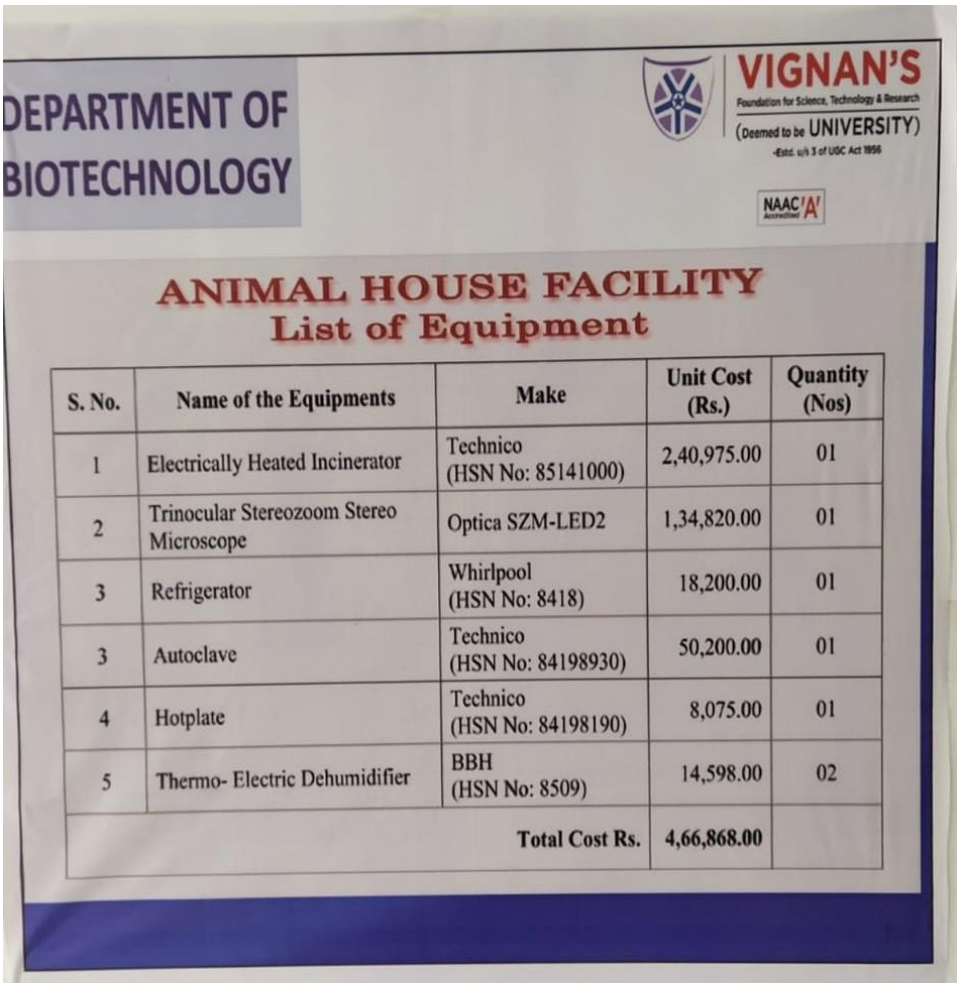
appropriate anesthetics, analgesics, and tranquilizers consistent with acceptable standards of veterinary medicine.

7. The appropriate anesthetic conditions are provided when painful experiments are conducting on the animals.

8. Multiple survival surgeries should not be done on the animal and most of the times the survival surgeries should be avoided until it was highly recommended.

9. It is the responsibility of the investigator to ensure that adequate post-surgical/procedural care is provided to all animals. This care must meet acceptable standards of veterinary medicine and be provided as long as necessary, including during non-duty hours.

Note: All the experimental work and maintenance of the animals in the animal house should strictly follow the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Fisheries, Animal Husbandry and Dairying, Government of India,



DEPARTMENT OF BIOTECHNOLOGY

VIGNAN'S Foundation for Science, Technology & Research (Deemed to be UNIVERSITY) -Estd. u/s 3 of UGC Act 1956

NAAC 'A'

ANIMAL HOUSE FACILITY
List of Equipment

S. No.	Name of the Equipments	Make	Unit Cost (Rs.)	Quantity (Nos)
1	Electrically Heated Incinerator	Technico (HSN No: 85141000)	2,40,975.00	01
2	Trinocular Stereozoom Stereo Microscope	Optica SZM-LED2	1,34,820.00	01
3	Refrigerator	Whirlpool (HSN No: 8418)	18,200.00	01
3	Autoclave	Technico (HSN No: 84198930)	50,200.00	01
4	Hotplate	Technico (HSN No: 84198190)	8,075.00	01
5	Thermo- Electric Dehumidifier	BBH (HSN No: 8509)	14,598.00	02
		Total Cost Rs.	**4,66,868.00**	

Inaugural Function

VFSTR ANIMAL HOUSE

Central Instrumentation Centre

Central Instrumentation Centre (CIC)

About:

Central Instrumentation Centre was established on 22nd Dec 2016 and operated by the department of ECE, to cater to product development, equipment maintenance, and support experimental research for various departments/centres of the VFSTR (Deemed to be university) by providing sophisticated instruments. It is equipped with various instruments necessary for testing and measuring and tools for service, maintenance, and repair works of all electronic equipment/appliances & teaching aid. Support for students and faculty across the university in the design and fabrication of instrumentation modules is provided by CIC.

Objectives:

The objectives of the CIC are to:

- Achieve excellence in instrumentation
- Maintenance of all Sophisticated Instruments of the University
- Repair & Service of Electronic equipment.
- Train students and faculty in instrument design and development
- Organizing training programmes to enhance the technical skills of scientific community

Outcomes:

- Quality improvement in instruments developed
- Extended life of the electronic systems
- Skilful students/faculty

Equipment list:

Major Equipment	
1.	Data Acquisition System DAQ6510/7700(Tektronics) – 800channels/second, 1 MS/s, 16 BitDigitizer
2.	Digital Multimeter (Tektronics) DMM6500 – 6 ½ Digit,
3.	RF Spectrum AnalyzerN9320B(Keysight)– Bandwidth 9 kHz to 3 GHz,
4.	Arbitrary Function Generator 33512B(Keysight) – 1 µHz to 20 MHz
5.	Multi Signal Oscilloscope MSO3024T(KEYSIGHT) – 16 digital channel, 200MHz, 2GS/s
6.	Moku Lock in Amplifier (Liquid Instruments) – 200MHz
7.	Scientific SM 6023 LCR Meter – 50 Hz to 100 kHz, 6 Digit Resolution
8.	Aadarsh Technologies Humidity Chamber 3CFT (90L) – 10°C to 60°C, 20RH to 75RH
9.	Multi-function calibrator Masibus UC 12
10.	Function Generator(APLAB) 2 MHZ
11.	Akademika Lab Solutions DSO 100MHz 1GS/s COLOR Digital storage oscilloscope with FFT
12.	USB-6211(NI) Bus-Powered M Series Multifunction DAQ Device
13.	My RIO-1900(NI) for student purchase WIFI and MSP Connector

14.	USB 9171(NI)single slot chassis
15.	USB 9237(NI) for Strain Measurement Input module.
16.	CAN interface bus compatible with my 19671RIO hardware platform.
17.	DAQ USB9181(NI) 4-Channel, SPST Relay Single slot chassis Data Acquisition System for Temperature and transport over Ethernet protocol.
18.	USB 9219(NI) 100 S/s/channel, 4-Channel C Series Universal Analog Input module for temperature module.
19.	USB IEEE 488(NI) GPIB HS Simulator and Instrument Simulator hardware bundle.
20.	Spectrum Analyzer Tracing Generator SN- EP160060 (GSAS) 3GHz
21.	PCB fabrication machine Eleven Lab (Entuple technologies) – Spindle Speed: 41,000rpm, Camera Monitoring System, working area of 229x320mm
Minor Equipment	
1.	Digital multimeter 17B+ (Fluke) – 3½ digit
2.	Gauss Meter GU 3001 (Lutron) – up to 3,000 mG, resolution 0.1 mG
3.	Clamp meter 317 (Fluke) – up to 600 A
4.	Panel meter SMP-72 (Meco) – 4 Digit, 0-1000V
5.	Infrared thermometer 62Max plus (Fluke) – -30°C to +650°C
6.	Lux meter 930P (Meco) – 0 to 2,00,000 Lux
7.	Sound meter SL 4030 (Lutron) – 30DB to 130DB, 31.5Hz to 8000 Hz
8.	Pressure switch KP 35(Danfoss) – -0.2 to 7.5 Bar
9.	Differential pressure calibrator(Magnalic gauge calibrator) PSI/PP1 (ACE) – 0 to 1410 mm.W.C
10.	Battery tester BM-63 (Meco) – 2,6,12V DC, 4-500 AH
11.	SMPS RS-15-5 (Mean well) – 5 VDC, 15W
12.	Digital differential pressure transmitter AI-DIGI-MAG-T (ACE) – Accuracy ±0.5 full scale
13.	Stereo Zoom MicroscopeSZB-45E Mag: 7x to 45x
14.	Digital Multimeter (APLAB) 3¾ Digit VC97
15.	Regulated DC Power Supply (APLAB) 0-32 V/2A
16.	Tachometer System Non-Contact Type tachometer-HTM-560
17.	Analog, Digital IC testers
Software	
1.	DAQMX driver software and Signal Express LE for Windows
2.	Lab View Academy Student Workbook for Student Use with Official Lab View Academy Program
3.	My DAQ - Student Kit - with Lab View & Multisim Student Edition
4.	PCB design software Cadence OrCADPCB 17.4 – 50 user licence
5.	Design prowith Converter and CAM – Importing design and controlling and setup PCB machine.
6.	Easy CAD for PCB design – Pattern creation, pattern drawing and editing
Consumables	
1.	**Sensors-** Temperature, RTD, ultrasonic, flex, capacitive, inductive, velocity, strain, piezoelectric, displacement, pressure, angle, force, accelerometer, PIR, Gyrometer, Fingerprint, RPM, AirQuality, Lidar, Water level,etc.

2.	**Actuators-** DC Motor, stepper motor, solenoidal valve, servomotor,etc
3.	**ICs-** ADC(TI-ADC),OP-Amps, Multiplexers, regulators, instrumentation amplifiers, etc
4.	**Discrete components-** Resistors, capacitors, diodes, transistors, led, Breadboards, etc
5.	**Tools-** Screw driver set, strippers, Gluegun, Tweezers, soldering gun, drilling machine etc

Services offered by CIC

Following are the services offered by CIC:

- Repair and Maintenance of Scientific Electronic and Electrical equipment
- Servicing of electronic devices
- Design of scientific instruments
- PCB design and component soldering for instrumentation
- Impedance, I-V, C-V measurements
- Electronic equipment testing under controlled humidity and temperature
- Support for Research and development activities for students and faculty

Contact Details

Center Incharges:

1. Dr. N V R Vikram G
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   Phone: 9482840480
2. Mr. S. Sivaji
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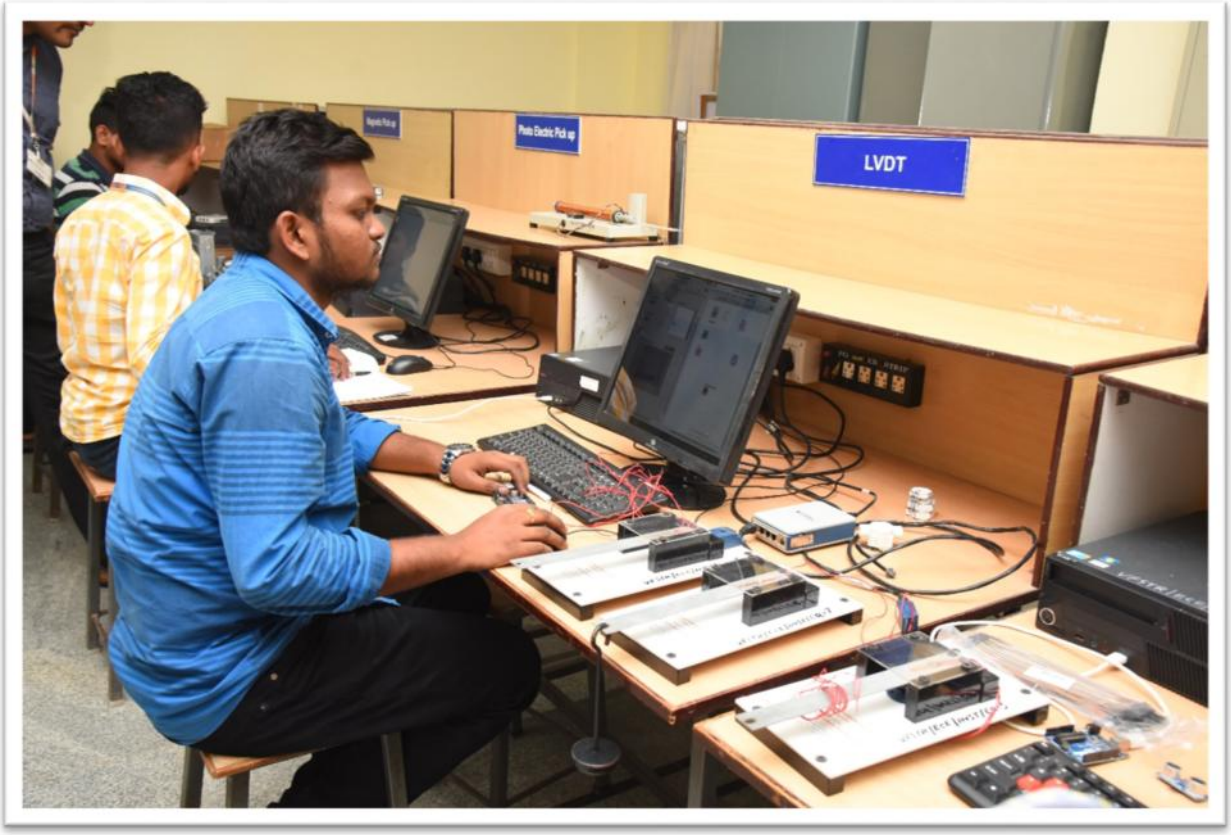
   Phone: 9160072782

HOD: Prof T. Pitchaiah

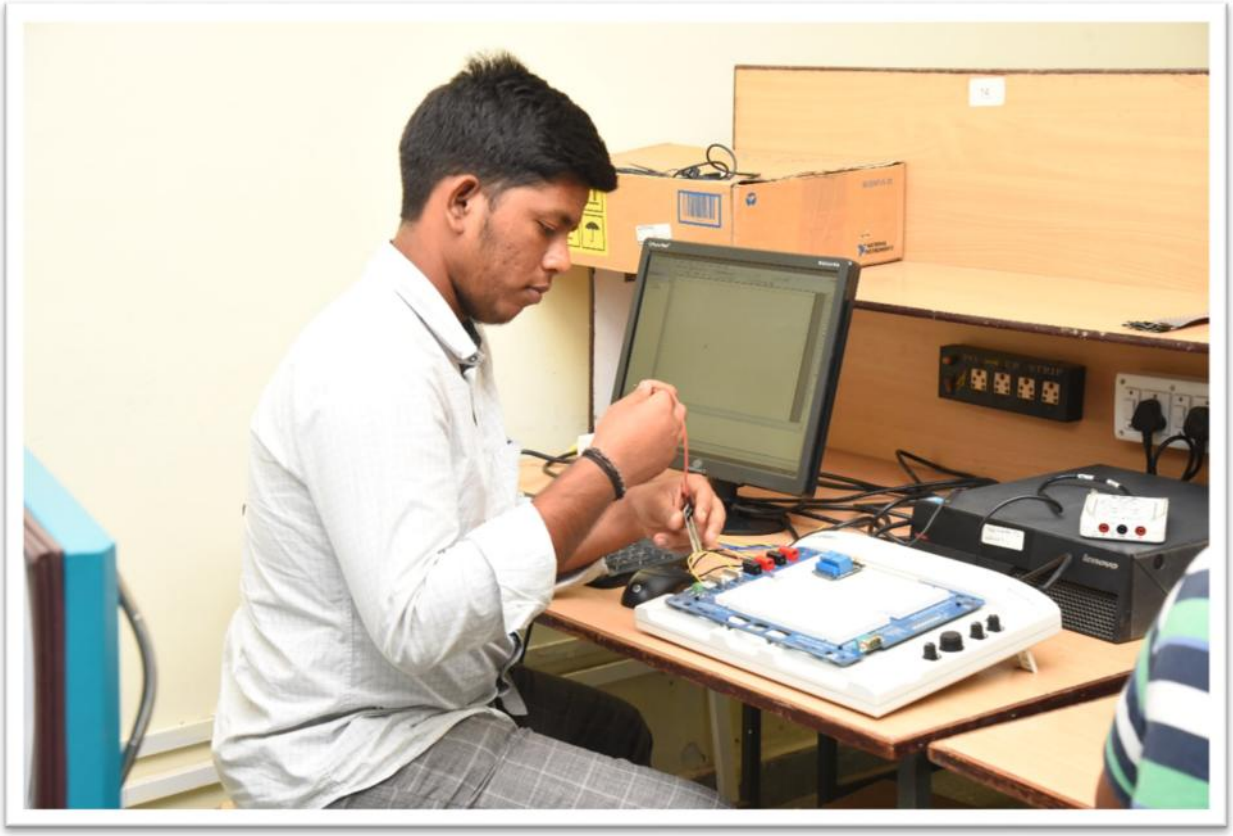
Email: hodece@vignan.ac.in

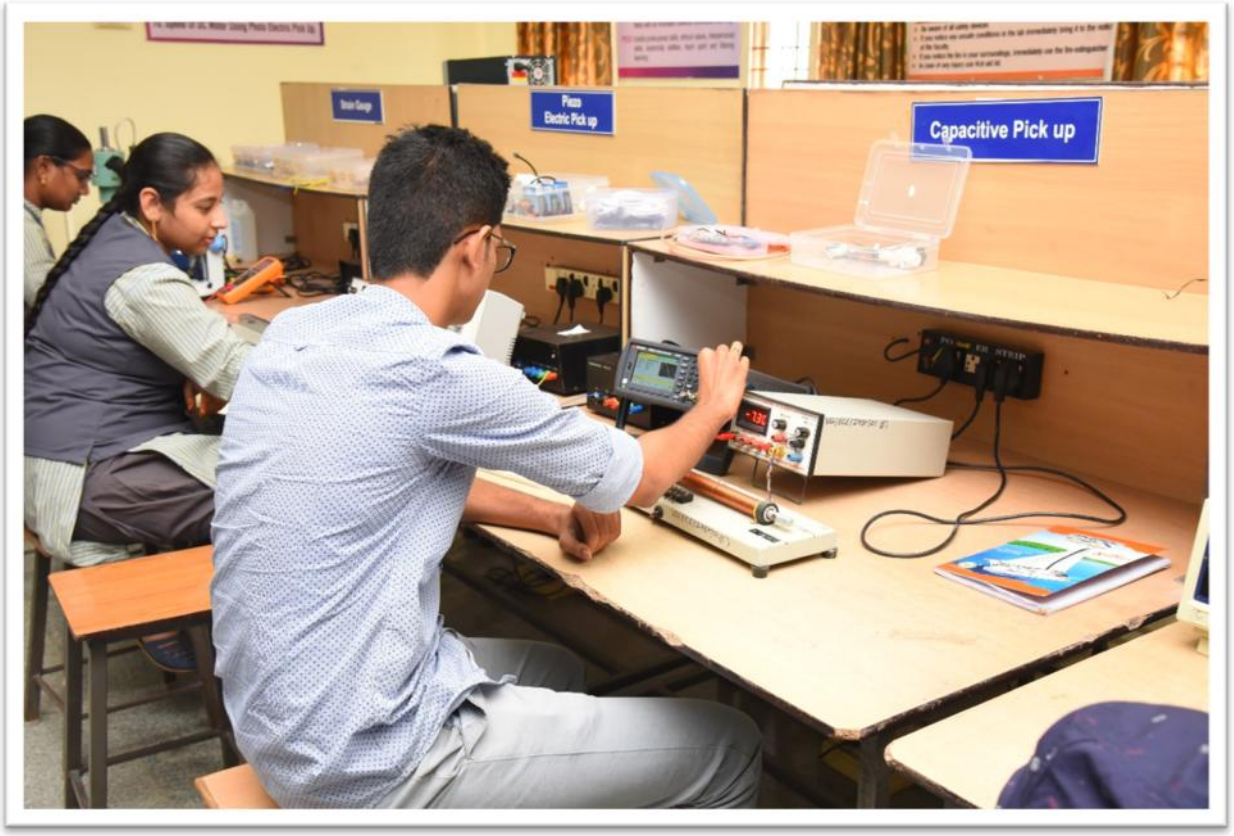
Phone: 7989672766/9703551269.

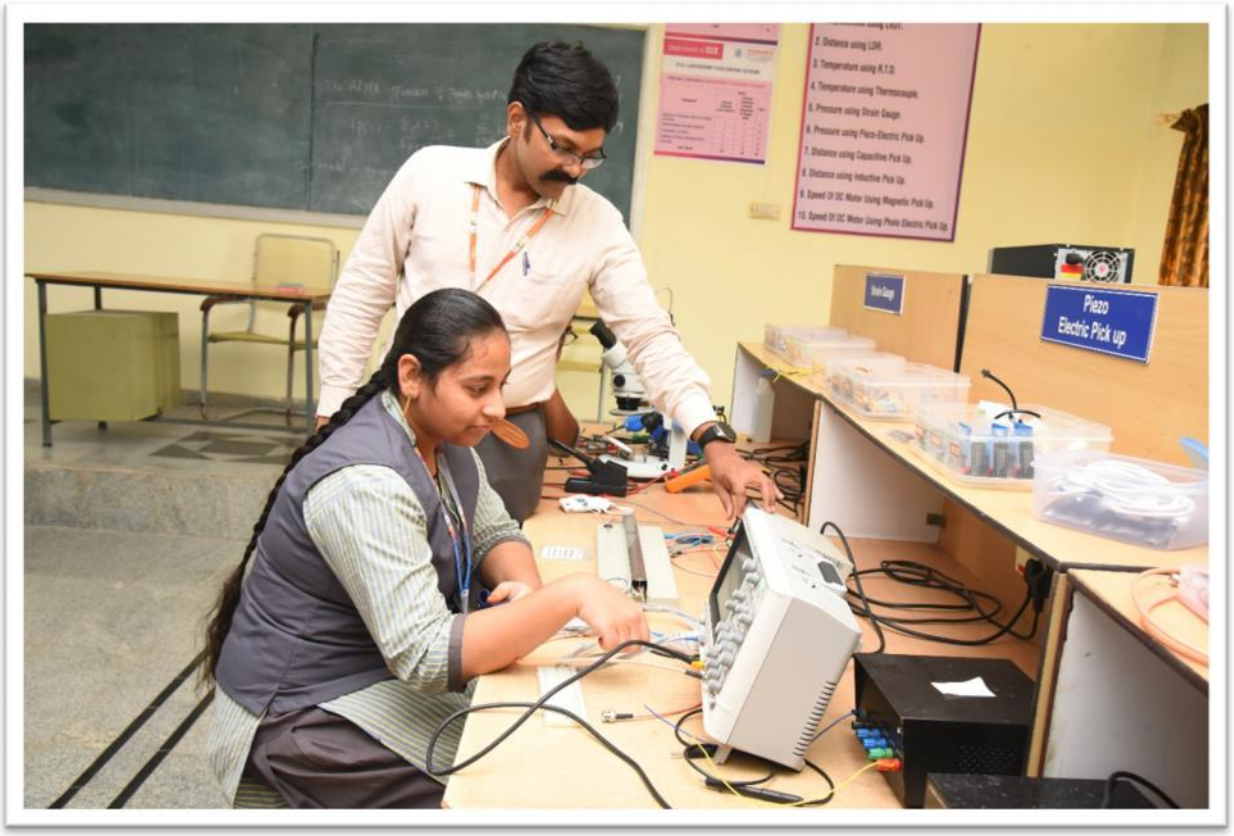
Gallery:




LDR
R.T.D




Strain Gauge
Piezo
Electric Pick up
Capacitive Pick up


Strain Gauge
Piezo
Electric Pick up

Location

https://www.google.com/maps/place/Central+Instrumentation+Center,+VFSTR/@16.2319437,80.5465704,17z/data=!3m1!4b1!4m5!3m4!1s0x3a4a0908c9b2261d:0xf80006358696561d!8m2!3d16.2319437!4d80.5487591?hl=en-IN

Media Centre

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Media Centre

Media Centre has been established on 18-03-2015 to cater the needs of e-content development, graphical design work and news coverage. It is headed by a Centre Head and consists of a ***team of 7 members which*** include photographer***, Videographer, one video editor, two graphics designers and two content developers*** for the development of e-content with the state of art photo and video cameras along with the necessary video editing software.

In 2015, 52 smart boards were installed at various class rooms and used to project the e-content effectively in class rooms with good audio and ICT enabled system. Media Centre has developed more than 1000 hours of video content from the last 5 years for all undergraduate courses. Along with this, it has also recorded all the events happening within the campus including Convocations, Important National day events, cultural festivals, Conferences and workshops and edited videos are preserved in hard disks.

Due to the recent Covid-19 pandemic situation, we have completely shifted to online classes and in this process we have established a quick ad-hoc based 32 e-recording facilities with webcam and audio recording at all the departments of the university for lecture capturing system. Along with this we have established 5 state of art of lecture capturing systems with Smart boards and cameras for e-content recording. Recently we have added another 5 state of art technology light boards, for delivering the theoretical subject video lectures with an equivalent class room teaching.

Apart from the e-content development, media centre provides the graphical designs for brochures, study materials, various festival flexi designs and the news coverage about the university both in print and electronic media.

The details of the hardware and software components available at the media centre are as follows:

Hardware equipment List

Sl No	Equipment	Quantity	Remarks
1	SONY PXW-Z150 VIDEO CAMERA	1	
2	NIKON D750 DSLR 24-120 4G LENS	1	
3	NIKON 7100 OLD PHOTO CAMERA	1	
4	SONY HANDY CAMERA	1	
5	SIMPLEX TRIPOD 650	1	
6	SIMPLEX VIDEO LIGHT	1	
7	NIKON D750 BATTERY	1	
8	SSONY Z150 BATTERY	1	
9	GODEX FLASH	1	
10	SANDISK SD CARDS 64GB WITH 150 MBPS	4	
11	LIGHT STAND BAG	1	
12	FLASH BATTERYS with Charger	4	
13	SIMPLEX LED LIGHT	1	

14	LIGHT STANDS	42	
15	CARD READERS	6	
16	HARD DISKS WITH 4TB STORAGE CAPACITY	8	
17	HARD DISKS WITH 3TB STORAGE CAPACITY	1	
18	SMART TV BOARDS	4	State of art Smart Boards with touch screen including Widows based OS to run videos or PPTs
19	LIGHT BOARDS	10	State of art of light boards for teaching theoretical subjects
20	PANASONIC HANDY CAMERA	11	
21	LED LIGHTS	40	
22	EXTERNAL 4TB HARD DISKS	9	
23	WIRELESS MIKES	2	
24	MEMORY CARDS 64GB CAPACITY	9	

Video Editing Software List

Sl No	Software Name
1	EDIUS
2	ADOBE PREMIERE
3	AFTER EFX
4	PRO SHOW MAKER
5	CAMTATIA

Graphical Design Software List:

Sl No	Software Name
1	ADOBE PHOTOSHOP
2	PAGE MAKER
3	ABODE IN DESIGN
4	COREL DRAW
5	ABODE ILLUSTRATOR
6	MS OFFICE

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Details of the Video Lectures Recorded in the last 5 academic years

We have been constantly improving the quality of the teaching–learning by video recordings with some animations as well as more informative. These recordings are helping the slow learners and backlog students. In the last 5 years, we have more than 1000 hours of video lectures captured and made available to students as a supplementary along with other e-content like lecture notes and power point presentations. The following is the list of the video lectures captured during the last 5 academic Years

Sl No	Academic Year	Number of Hours of Video content available
1	2015-16	55
2	2016-17	148
3	2017-18	216
4	2018-19	284
5	2019-20	328
	Total Hours	**1031**

In the current academic year (2020-21), more than 2000 hours of videorecording is completed and another 2000 hours of lecture recording is planned.

The following is the details of the video recordings subject wise.

Sl No	Subject Name	Number of Hours of Video content available (In last 5 years)	Number of Hours of video content developed in the current academic year (2020-21)
1	Mathmatics	10	20
2	Physics	10	20
3	Chemistry	10	20
4	Technical English	8	20
5	Manufacturing Technology	8	20
6	Materials Science & Metallurgy	9	20
7	Engineering Thermodynamics	8	20

8	Mechanisms & Machines	9	20
9	Design of Machine Elements	8	20
10	Dynamics of Machines	8	20
11	CAD/CAM	10	20
12	Thermal Turbo Machinery	9	20
13	Tribology	10	20
14	Additive Manufacturing	6	20
15	Reverse Engineering	9	20
16	Advances in Robotics	7	20
17	Industrial Engineering and Production Management	8	20
18	Operations Research	8	20
19	Refrigeration & Air Conditioning	6	20
20	Environmental Science and Technology	7	20
21	Fracture Mechanics	8	20
22	Non - Destructive Testing For Mechanical Engineers	8	20
23	Product Life Cycle Management	9	20
24	Artificial Intelligence in Robotics	8	20
25	Experimental Stress Analysis	9	20
26	Linear Systems and Signal Analysis	8	20
27	Electrical Ciruit Analysis	8	20
28	Electromagnetic Fields	10	20
29	Digital Electronic Circuits	9	20
30	Analog Electronics	10	20
31	Control Systems	6	20
32	Electrical Power Transmission and Distribution	9	20
33	Electrical Measurements and Instrumentation	7	20
34	Transformers and Induction motors	8	20
35	Department Electrive(PE stream)-III Analysis of Inverters	8	20
36	Department Electrive(AE stream)-III Utilization of Electrical Energy	6	20
37	Electric Drives	7	20
38	Power System Operation and Control	10	20
39	Principles of Digital signal Processsing	6	20
40	AI Techniques in Electrical Engineering	9	20
41	Department Electrive(PE stream)-III	7	20

42	SMPS based converters	8	20
43	Department Electrive(AE stream)-III Energy Audit, Conservation and Management	8	20
44	Basic Electrical and Electronics Engineering	9	20
45	Basic Engineering Products	7	20
46	Electrical Machines and Power Utilization	8	20
47	Open Elective(SPVT-II)	8	20
48	Open Elective(Solar Thermal Systems)	6	20
49	Chemical Process Calculations	0	10
50	Mechanical Unit Operations	0	10
51	Process Heat Transfer	0	10
52	Chemical Engineering Thermo Dynamics-II	0	10
53	Mass Transfer Operations-I	0	10
54	Chemical Reaction Engineering-I	0	10
55	Process Dynamics & Control	0	10
56	Solid Waste Management & Treatment	0	10
57	Non Conventional Energy Sources	0	10
58	Chemical Engineering Plant Design and Economics	0	10
59	Chemical Process Equipment Design	0	10
60	Optimization of Chemical Processes	0	10
61	Transport Phenomena	0	10
62	Industrial Safety and Hazard Analysis	0	10
63	Food Chemistry and Toxicology	0	10
64	Food Microbiology	0	10
65	Fundamentals of Fluid Mechanics	0	10
66	Thermo Dynamics & Heat Engines	0	10
67	Bakery Confectionary Technology	0	10
68	Cereals, Legumes and Oilseeds Process Technology	0	10
69	Fruits and Vegetables Processing	0	10
70	Nutraceuticals and Functional Foods	0	10
71	Maintenance of Food Equipments	0	10
72	Food Toxicology and Agrochemical Resides	0	10
73	Beverage Technology	0	10
74	Food Process Equipment Design	0	10
75	Meat, Fish and Poultry Process Technology	0	10

76	Spices and Plantation Crops Process Technology	0	10
77	Post Harvest Management of Fruits and Vegetables	0	10
78	Risk Analysis in Food Safety	0	10
79	Technology of Manufactured Fibers	0	10
80	Yarn Manufacturing	0	10
81	Fabric Manufacturing	0	10
82	Fashion Theory	0	10
83	Testing of Fibres and Yarns	0	10
84	Apparel Production, Planning and Control	0	10
85	Garment Dyeing, Printing and Embroidery	0	10
86	Textile Mathematics	0	10
87	Circular Knitting	0	10
88	Dyeing and Printing Machinery	0	10
89	Clothing Comfort	0	10
90	Industrial Engineering for Textiles and Apparels	0	10
91	Apparel Costing and Export Documentation	0	10
92	Technical Textiles	0	10
93	Men, Women, Children Wear Construction Lab	0	10
94	Mechanics of Weaving Machines	0	10
95	Functional Finishes	0	10
96	Petroleum Geology	0	10
97	Fundamentals of Geology	0	10
98	Process Dynamics & Control	0	10
99	Drilling Technology	0	10
100	Process Instrumentation	0	10
101	Well logging and Formation Evaluation	0	10
102	Advanced Natural Gas Engineering	0	10
103	Health, Safety and Environment Engineering	0	10
104	Petroleum Engineering Equipment Design	0	10
105	Petroleum Reservoir Engineering - II	0	10
106	Enhanced Oil Recovery Methods	0	10
107	Natural Gas Processing	0	10
108	Biochemistry	8	20
109	Cell and Molecular Biology	9	20
110	Microbiology	7	20
111	Unit operations	8	20

112	Biochemical Reaction Engineering	9	20
113	Biosensors	10	20
114	Enzyme Technology	7	20
115	Industrial Biotechnology	6	20
116	Agricultural Biotechnology DE (Plant)	8	20
117	Tissue Engineering and Regenerative Medicine (DE (Animal))	9	20
118	Fermentation Products (DE (Microbial))	8	20
119	Plant Biotechnology (OE)	10	20
120	Nanobiotechnology	7	20
121	Bioinformatics	6	20
122	Downstream Processing	8	20
123	Genomics and Proteomics	9	20
124	Immunology and Immunoinformatics	8	20
125	Transgenic Plants (DE (Plant))	7	20
126	Drug Toxicity and Evaluation (DE (Animal))	8	20
127	Metabolomics and Metabolic Engineering (DE (Microbial))	9	20
128	Nano Technology in Agricultural and Food industries (OE (Biotech))	7	20
129	Molecular genetics	0	20
130	Molecular Phylogenetics	0	20
131	Molecular Modeling (DE (Drugs))	0	20
132	Next Generation Sequencing and Analysis (DE (Genome))	0	20
133	Comparative Genomics (OE (Bioinformatics))	0	20
134	Structural Bioinformatics	0	20
135	Biomedical Informatics	0	20
136	Drug Design (DE (Drugs))	0	20
137	Metagenomics (DE (Genome))	0	20
138	Molecular Modeling and Drug Design (OE (Bioinformatics))	0	20
139	DSD	8	20
140	Signals and Systems	6	20
141	Electronics Design and Circuits	8	20
142	Linear Integrated Circuits and Applications	8	20
143	Micro Processors and Micro Controllers	9	20
144	Digital Communications	8	20

145	Electromagnetics and Transmission Lines	10	20
146	Television Engineering	6	20
147	Perl & Python	4	20
148	MCES(DE)	7	20
149	ESRTOS	5	20
150	OC	7	20
151	MWRE	9	20
152	EI	6	20
153	CN	8	20
154	DIP	8	20
155	DIoT	4	20
156	SoC	6	20
157	SC	10	20
158	ASN	5	20
159	CMC	5	20
160	Embedded Systems	3	20
161	Mobile Communications	4	20
162	BCS	0	10
163	AEC	0	10
164	ECT	0	10
165	ADC	0	10
166	BCS	0	10
167	BMI	0	10
168	AD	0	10
169	FMCS	0	10
170	BMI(OE)	0	10
171	DTE-2	0	10
172	MIP	0	10
173	RE	0	10
174	TM	0	10
175	MIT (OE)	0	10
176	Strength of Materials	0	10
177	Fluid Mechanics	0	10
178	Building Materials and Concrete Technology	0	10
179	Surveying and Geomatics	0	10
180	Environmental Engineering – II	0	10
181	Geotechnical Engineering – I	0	10
182	Structural Analysis – II	0	10
183	Transportation Engineering – I	0	10
184	Water Resources Engineering - I	0	10

185	Department Elective-1 (Structural Dynamics)	0	10
186	Department Elective-2 (Construction Project Management)	0	10
187	Open Elective (Environmental Pollution and Control)	0	10
188	Design of Steel Structures	0	10
189	Engineering Geology	0	10
190	Estimation and Costing	0	10
191	Department Elective (Seismic Evaluation and Retrofitting of Structures)	0	10
192	Other Elective (Environmental Impact Assessment)	0	10
193	Programming for Problem Soving	5	20
194	Basics of Computers and internet	7	20
195	Computer Programming & Data Structures	9	20
196	OOPs through JAVA	6	20
197	Data Structure	8	20
198	Data base management system	8	20
199	Digital Logic Design	9	20
200	Software Engineering	6	20
201	Web Technologies	9	20
202	compiler design	7	20
203	Operating Systems	9	20
204	Open Systems for Web Technologies	6	20
205	Fundamentals Of Image Processing	9	20
206	Distributed systems	8	20
207	R Programming	7	20
208	Search Engines	6	20
209	Information Security	5	20
210	Mobile Communications	9	20
211	Pattern Recognition	9	20
212	Emerging Technology	6	20
213	Big Data & Analytics	8	20
214	DSUP	8	20
215	Python programming	7	20
216	POAG	0	10
217	S&L	0	10
218	TOM	0	10
219	MAC	0	10
220	AC	0	10

221	FM&HM	0	10
222	ATICE	0	10
223	WHY	0	10
224	AMT	0	10
225	TTW	0	10
226	MD	0	10
227	DSE	0	10
228	CPE	0	10
229	TSC	0	10
230	AEC	0	10
231	FME-II	0	10
232	Probability and Statistics	1	20
233	Data Structures	8	20
234	Digital Logic Design	9	20
235	Database Management Systems	6	20
236	OOPs through JAVA	5	20
237	Software Engineering	8	20
238	Design and Analysis of Algorithms	7	20
239	Formal Languages and Automata Theory	6	20
240	Operating Systems	8	20
241	Open Systems for Web Technologies	7	20
242	R Programming(Open Elective)	9	20
243	Cloud Computing	9	20
244	Information Security	5	20
245	Big Data Analytics	8	20
246	Mobile Application Development	9	20
247	Internet of Things	9	20
248	Data Science using Python(Open Elective)	5	20
249	Principles of Management and Organizational Behavior	0	20
250	Accounting for Managers	0	20
251	Business Statistics	0	20
252	Business Economics	0	20
253	Business Environment & Ethics	0	20
254	Essential Skills For Managers	0	20
255	Legal Environment and business	0	20
256	Entrepreneurship & Business Plan	0	20
257	Supply Chain Management	0	20
258	Industrial Relations and Labour Laws	0	20
259	Marketing Research	0	20

260	Talent Management&Succession planning	0	20
261	Investment Analysis and portfolio Management	0	20
262	International Financial Management	0	20
263	Sales and Distribution	0	20
264	Corporate Strategy	0	20
265	Introduction to Business Analytics	0	20
266	Managerial Economics (III B.Tech)	5	20
267	PMOB (II B.Tech)	4	20
268	Engineering Entrepreneurship (IV B.Tech)	6	20
269	Management Science (IV B.Tech)	4	20
270	Entrepreneurship Development and Business (II AG)	4	20
271	Agricultural Business Management	4	20
272	Business Mathematics	0	10
273	Micro Economics	0	10
274	Financial Accounting	0	10
275	Business Communication-I	0	10
276	Public Administration	0	10
277	Business Research Methods	0	10
278	Management Accounting	0	10
279	Business Environment	0	10
280	Indian Banking & Insurance	0	10
281	Business Law	0	10
282	Business Ethics & Corporate Governance	0	10
283	Industrial Relations and Labour Laws	0	10
284	Entrepreneurship development	0	10
285	GST	0	10
286	Strategic Management	0	10
287	Organizational Behaviour	0	10
288	Talent Management&Succession planning	0	10
289	Investment Analysis and portfolio Management	0	10
290	International Financial Management	0	10
291	Sales and Distribution	0	10
292	Pharm. Organic Chemistry-II	0	10
293	Physical Pharmaceutics-1	0	10
294	Pharm. Microbiology	0	10

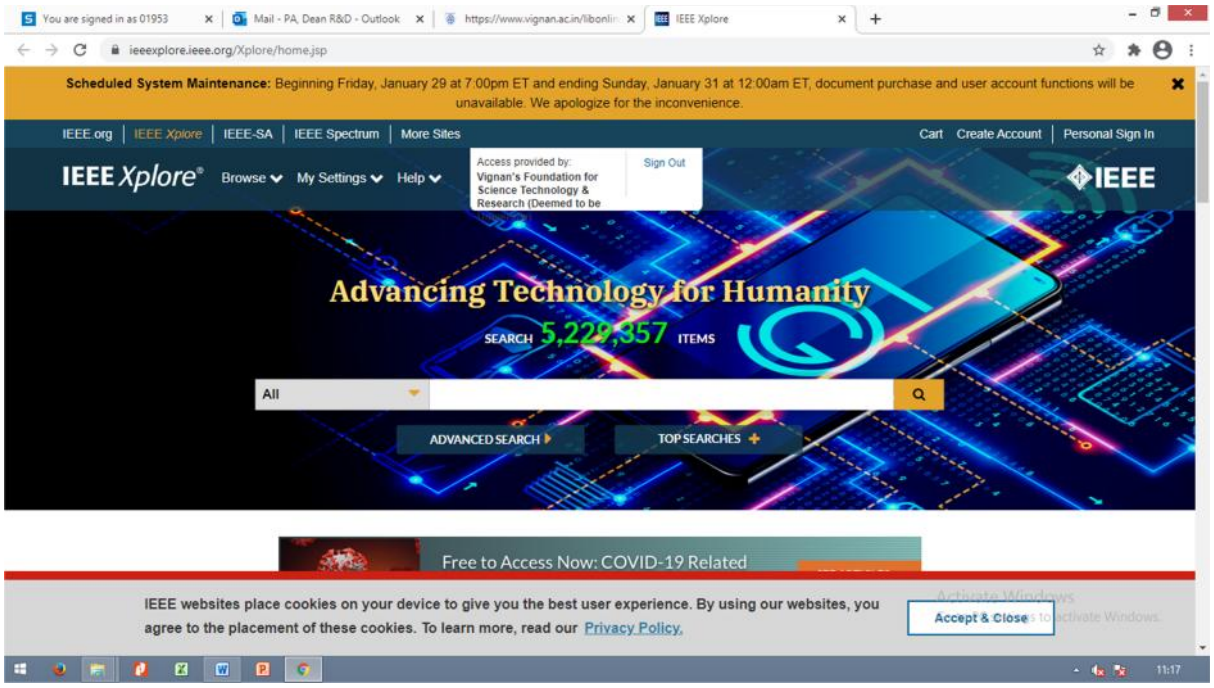
295	Pharm. Engineering	0	10
296	Medicinal Chemistry-2	0	10
297	Industrial Pharmacy-1	0	10
298	Pharmacology-2	0	10
299	Pharmacognosy& Phytochemistry-2	0	10
300	Pharm. Jurisprudence	0	10
	Total	**1031**	**4650**

Research / Statistical Databases

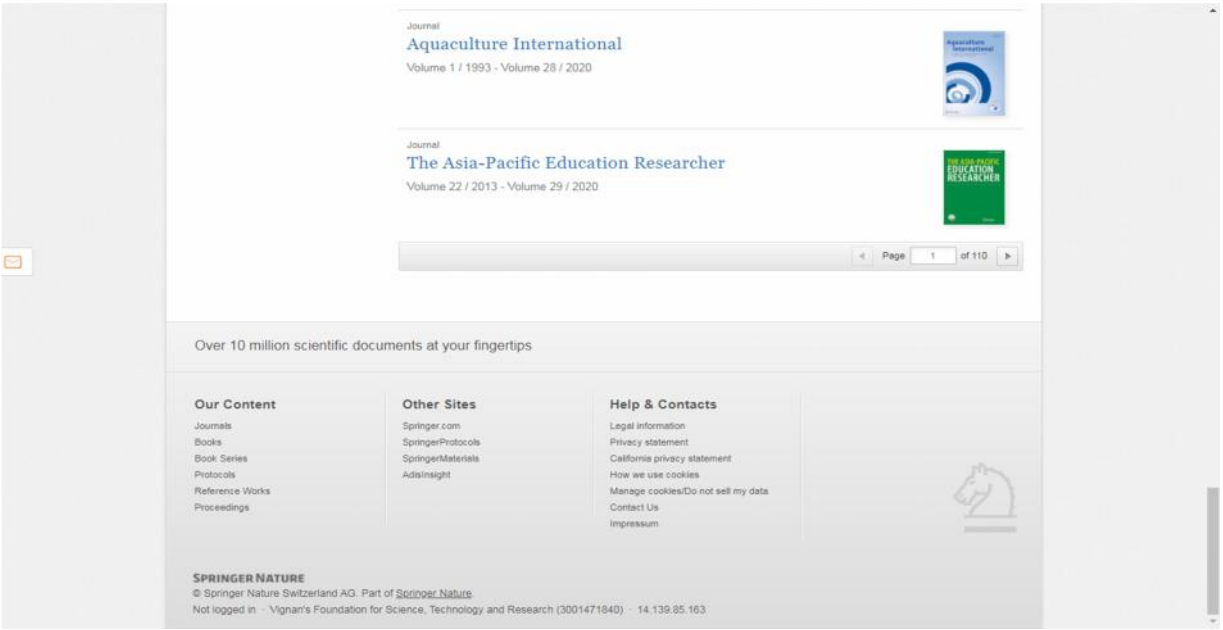
Research / Statistical Databases

S no	Name of the Database	Content accessible	URL of Website
1	IEL Growth Plan (Multi User)-Computer Engg + Computer Science + Electrical & Electronics Engg + Telecommunication & related displines	283 Journals (back file access since 2000)	http://www.ieee.org/ieeexplore
2	Springer : Electrical and Electronics, Computer Science,Maths,physics.Chemistry & Biotechnology	1400 + (back file access since 1997)	http://link.springer.com
3	ASME :(American Society of Mechanical Engineers): Mechanical Engineering Journals	25 Journals (back file access since 2000)	http://asmedl.org
4	ASCE : (American Society of Civil Engineers): Civil Engineering Journals	33 Journals (back file access since 1983)	http://ascelibrary.org
5	EBSCO -Business Sournce Elite e journal (Management)	1096 = Total number of journals & magazines in full text	Http://search.ebscohost.com
6	JSTOR	Science & Humanities e-journals	http://www.jstor.org/
7	DOAJ e journals	free, full text, quality controlled scientific and scholarly journals	https://doaj.org
8	Knimbus	Remote Access	https://vignan.new.knimbus.com/user#/home
10	DELNET	Books & Journals	http://164.100.247.30/
11	Soudhganga	Thesis	https://shodhganga.inflibnet.ac.in/handle/10603/230424
12	E-Soudh Sindhu	Journals	https://ess.inflibnet.ac.in/ndl.php
13	Open Government Data (OGD) Platform India	Statistical Database	https://data.gov.in/

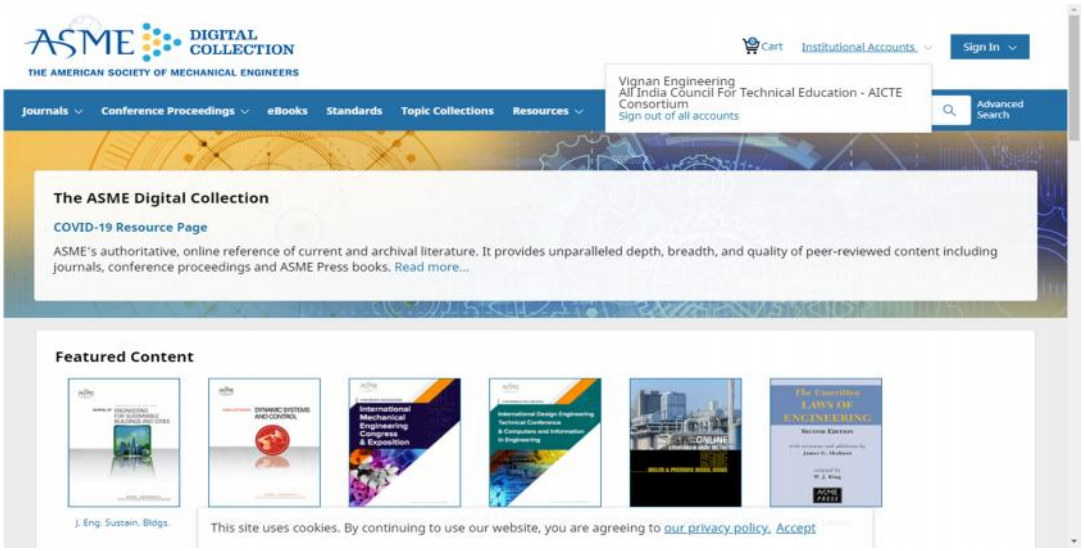
1) IEL Growth Plan (Multi User)-Computer Engg + Computer Science + Electrical & Electronics Engg + Telecommunication & related displines



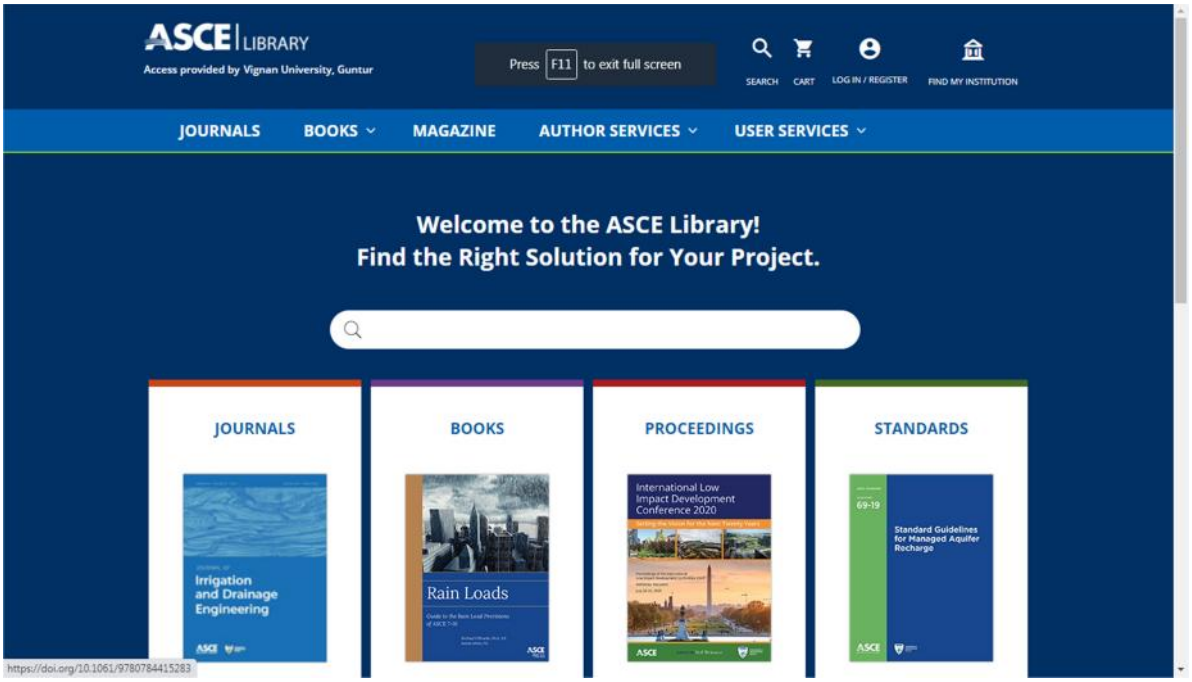
2) Springer : Electrical and Electronics, Computer Science, Maths, Physics. Chemistry & Biotechnology



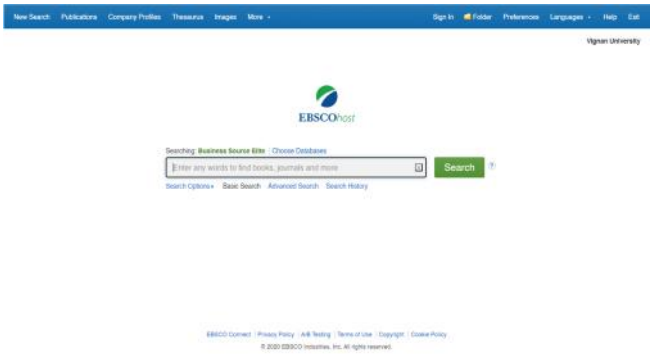
3) ASME :(American Society of Mechanical Engineers): Mechanical Engineering Journals



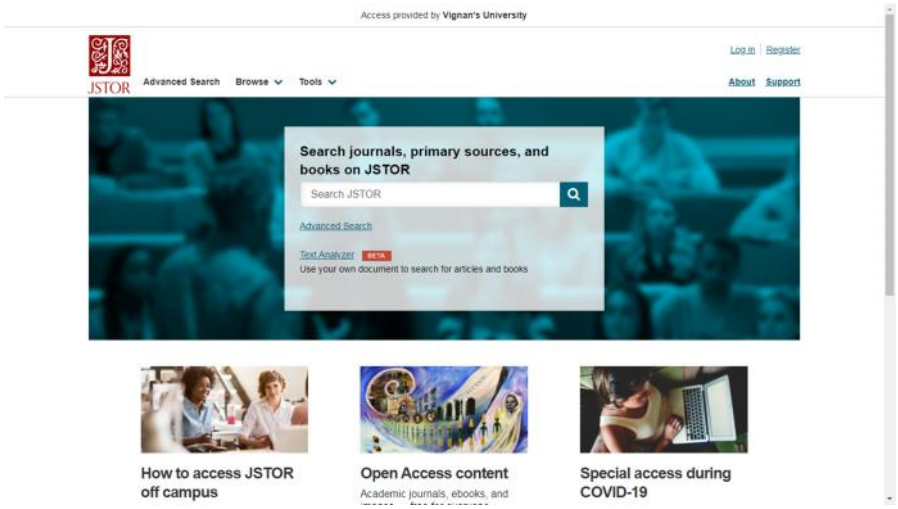
4) ASCE : (American Society of Civil Engineers): Civil Engineering Journals



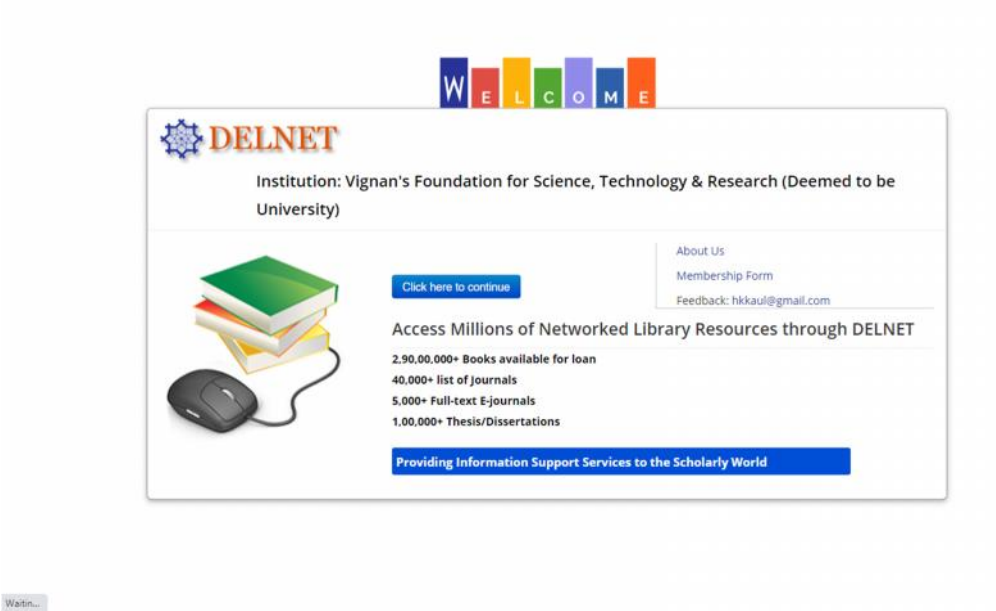
5) EBSCO -Business Sournce Elite e journal (Management)



6) JSTOR

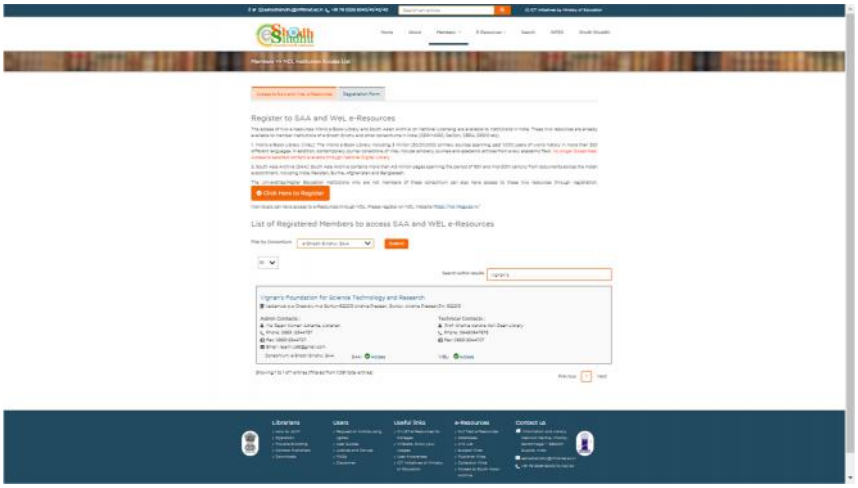


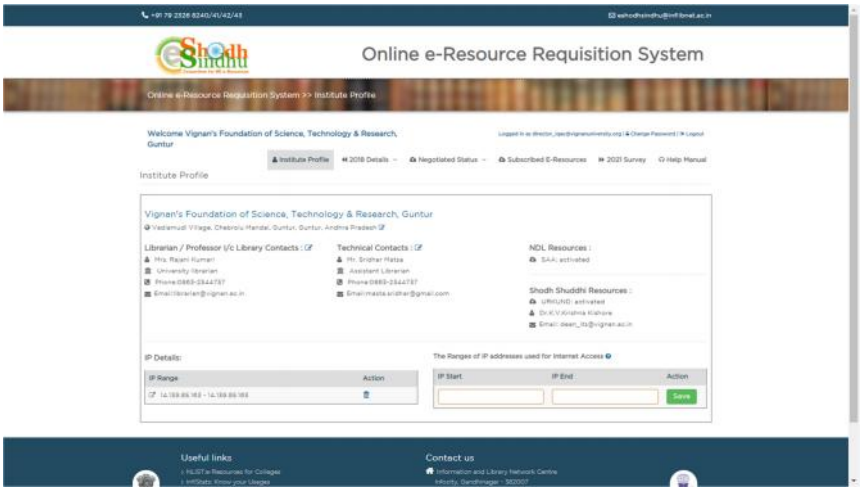
7) DELNET



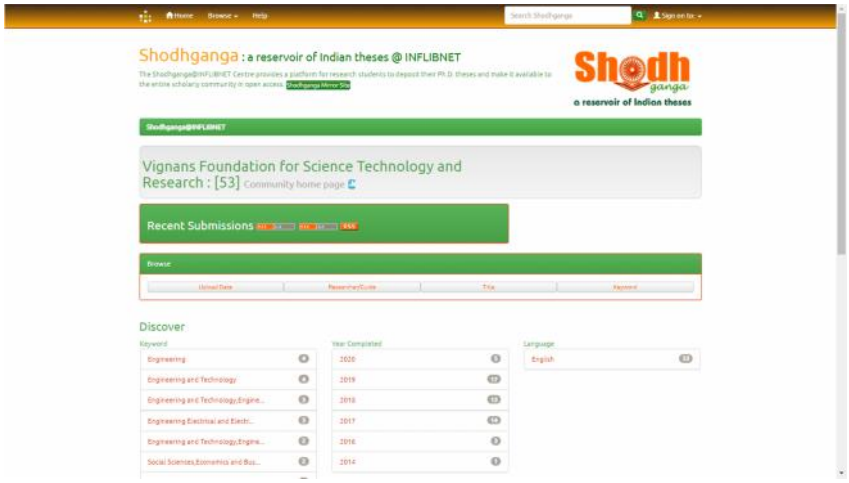
Waitin...

8) *E-Shodhsindhu:*

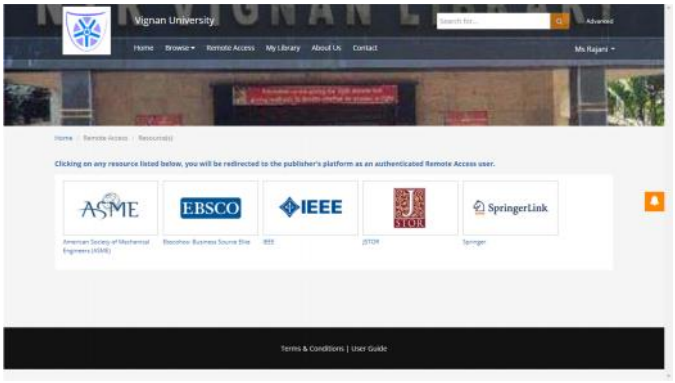




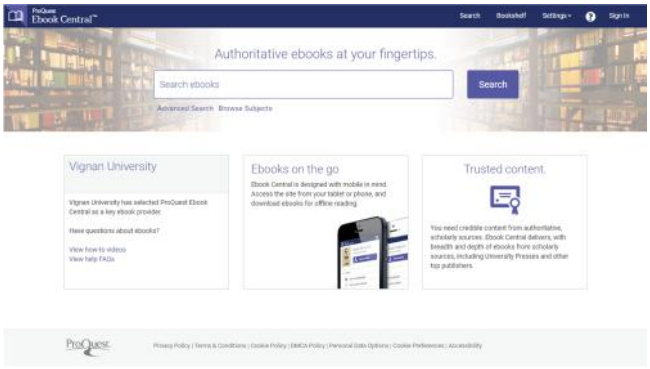
9) *Shodhganga:*



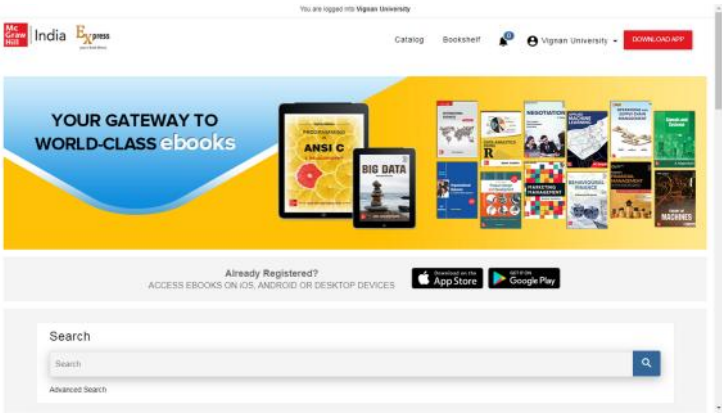
10) KNIMBUS (Remote Access):



11) **Pearson E-Books**



12) MCGRAW-Hill E-Books



13) World E-Book Library through NDL