
INFRASTRUCTURE

- Four well-furnished Class Rooms
- A seminar hall with 40 seats
- Department Library
- 400 text books, project reports, seminar reports, journals, papers published, magazines (college & department), CDs, old question papers of tests and main VTU question papers.
- Staff Room
- Wi-Fi Browsing Room
- VTU R&D Center
- Labs catering to the full requirements of VTU and beyond syllabus.

LAB DETAILS

- DSP lab with Texas Instruments floating point DSPs -6711
- Microcontroller lab with PIC μ cs, 8051 μ cs & MSP430 μ cs
- HDL lab with Spartan 3E FPGAS & Xilinx software.
- Process Control lab has PC based control loops of temperature, flow, pressure level and level, GE-fanuc based PLCs.
- Software such as LabVIEW, Octave, MATLAB, Keil, CCS, MultiSim, Orcad, C++ using turbo etc. Calibration and control experiments are carried out in these labs.
- IT lab and DCCS (Data acquisition and control system lab) have experiments where different sensors are characterized along with the necessary signal conditioning
- Logic Design and Analog Electronics labs catering to lower semesters.
- Python lab using Eclipse software to cover extra syllabus beyond syllabus.

FACULTY

- Highly experienced with PG degrees.
- Currently Two PhD holders & Seven faculty pursuing PhD
- Published more than 60 papers in the last three years.
- Participate in University activities and other Autonomous Institutes' curriculum updates as BOE, BOS, etc.
- Dedicated to provide a conducive environment to students for their all-round development in both academic and co-curricular activities

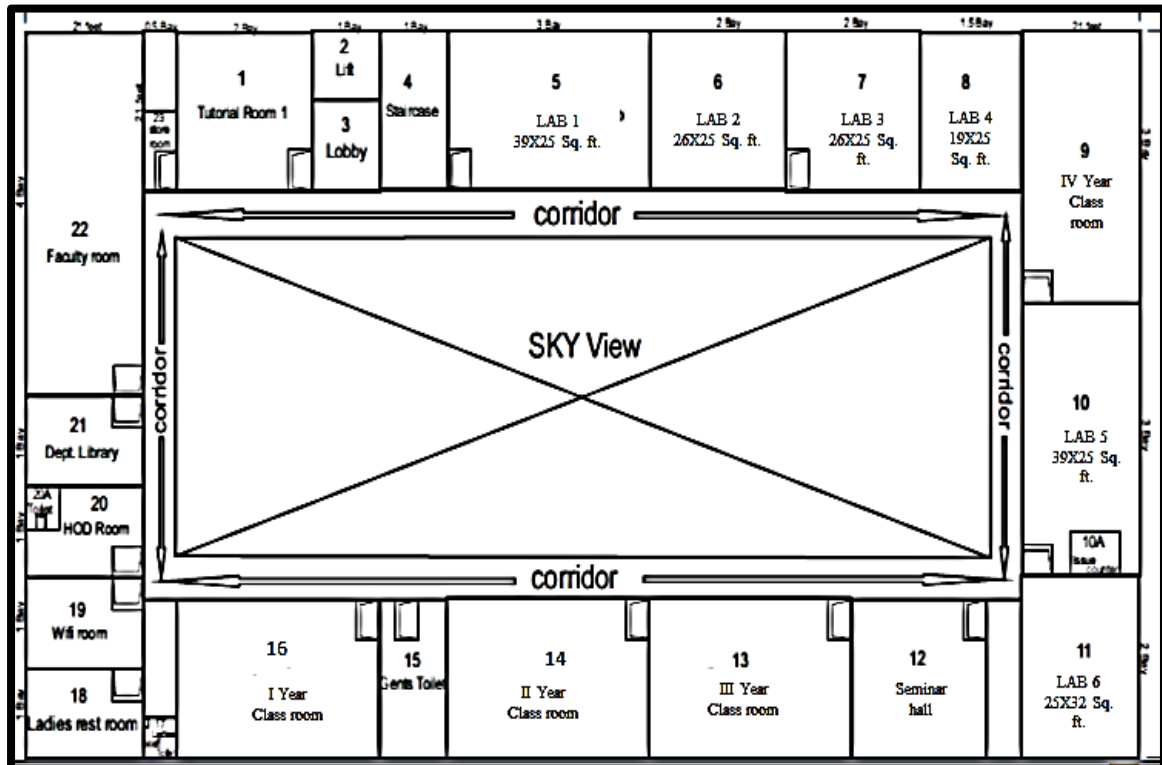
NUMBER OF TEACHING POSTS

- Professor-1
- Associate Professors-2
- Assistant Professors-7

FACILITIES AND TECHNICAL SUPPORT

Adequate space is provided for setting up the laboratories in the Department of EIE. All the laboratories are well equipped and well-furnished.

Fig below shows the layout of EIE Department. It shows the arrangement of classrooms and physical laboratories named LAB 1 to LAB 6 in the Department.



EIE Department Layout

Fig below shows the layouts of laboratories of EIE Department.

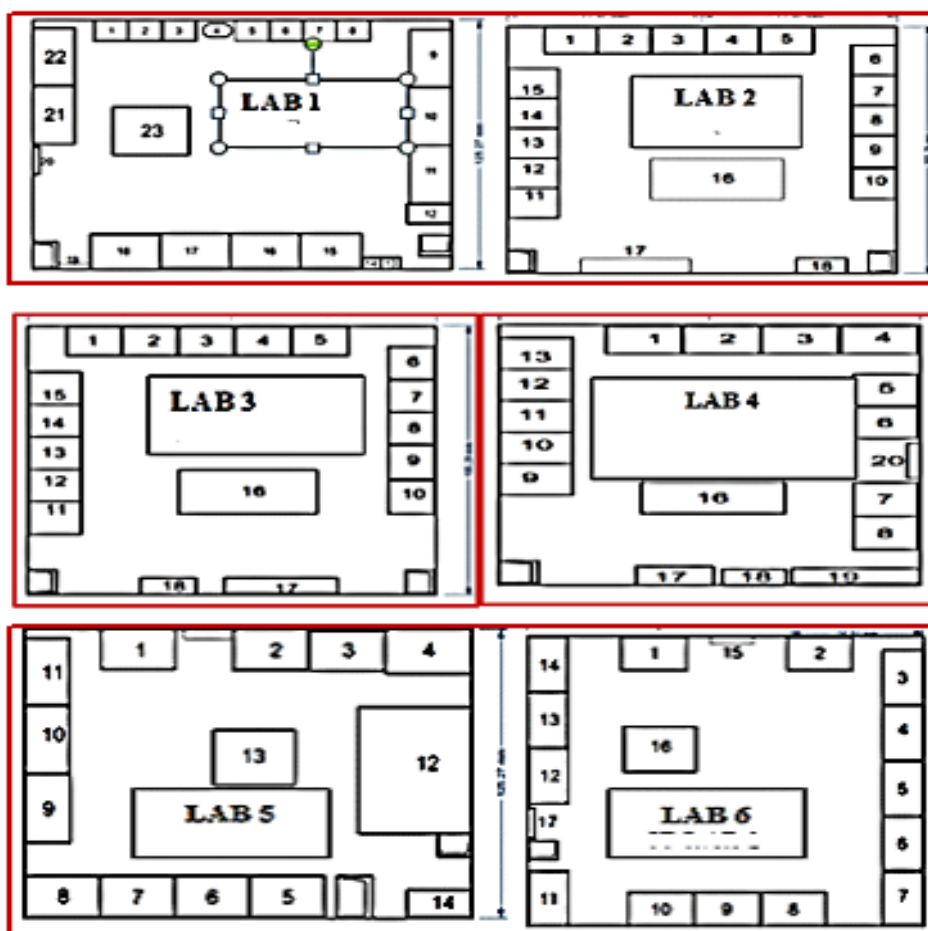


Fig: Layouts of Lab 1 to Lab 6

Table shows the list of various labs conducted in particular physical Laboratories for the past three academic years.

Table (a): List of Labs held in each physical laboratory during odd semester of Academic year 2018-19

Sl. No	Labs Name	Labs held during Odd semester (Aug-Nov 2018)	Semester
1	LAB1	Process control Lab (15EIL76)	7
2	LAB2	ARM Processor Lab (15EIL77)	7
		Digital Signal Processing Lab (15EIL58)	5
3	LAB3	HDL Lab (17EIL38)	3
		Digital Signal Processing Lab (15EIL58)	5
		Virtual Instrumentation Lab (15EIL76)	7
4	LAB4	Project Lab	7

5	LAB5	Digital Design Lab (17EIL38)	3
		Data Acquisition Lab (15EIL57)	5
6	LAB6	Analog Electronic Circuits Lab (17EIL37)	3
		Signal Conditioning Circuits Lab (15EIL57)	5

Table (b) List of Labs held in each physical laboratory during even semester of Academic year 2017-18

Sl. No	Labs Name	Labs Conducted during Even semester (Feb-June 2018)	Semester
1	LAB1	Instrumentation and Measurement Lab (15EIL48)	4
2	LAB2	OOPS with C++ Lab (15EIL68)	6
3	LAB3	OOPS with C++ Lab (15EIL68)	6
		Embedded Controllers Lab -Assembly programs (15EIL47)	4
4	LAB4	Embedded Controllers Lab-Interfacing programs (15EIL47)	4
5	LAB5	Communication and Control Lab (15EIL67)	6
		Instrumentation and Measurement Lab (15EIL48)	4
6	LAB6	Power Electronics Lab (15EIL67)	6

Table (c) List of Labs held in each physical laboratory during odd semester of Academic year 2017-18

Sl. No	Labs Name	Labs held during Odd semester (Aug-Nov 2017)	Semester
1	LAB1	Process control Lab (10EIL77)	7
2	LAB2	Digital Signal Processing Lab (15EIL58)	5
		Process control Lab (10EIL77)	7
3	LAB3	HDL Lab (15EIL38)	3
		Digital Signal Processing Lab (15EIL58)	5
4	LAB4	Digital design Lab (15EIL38)	3
		Data Conversion Lab (10EIL78)	7
5	LAB5	Analog Electronics Lab (15EIL37)	3
		Data Acquisition Lab (15EIL57)	5
6	LAB6	Analog Electronic Circuits Lab (15EIL37)	3
		Signal Conditioning Circuits Lab (15EIL57)	5

Note: Power Electronics lab (10EIL77) was held in EEE department by sharing the lab

**Table (d) List of Labs held in each physical laboratory during
even semester of Academic year 2016-17**

Sl. No	Labs Name	Labs Conducted during Even semester (Feb-June 2017)	Semester
1	LAB1	Instrumentation and Measurement Lab (15EIL48)	4
2	LAB2	Digital Signal Processing Lab (10EIL67)	6
3	LAB3	Digital Signal Processing Lab (10EIL67)	6
		Embedded Controllers Lab -Assembly programs (15EIL47)	4
4	LAB4	Embedded Controllers Lab-Interfacing programs (15EIL47)	4
5	LAB5	Instrumentation and Control Lab (10EIL68)	6
		Instrumentation and Measurement Lab (15EIL48)	4
6	LAB6	Instrumentation and Control Lab (10EIL68)	6

**Table (e) List of Labs held in each physical laboratory during
odd semester of Academic year 2016-17**

Sl. No	Labs Name	Labs held during Odd semester (Aug-Nov 2016)	Semester
1	LAB1	Microprocessor Lab (10EIL58)	5
		Process control Lab (10ITL78)	7
2	LAB2	Microprocessor Lab (10EIL58)	5
		Process control Lab (10ITL78)	7
3	LAB3	HDL Lab (15EIL37)	3
		Digital Signal Processing Lab (10ITL77)	7
4	LAB4	Digital design Lab (15EIL37)	3
5	LAB5	Analog Electronic Circuits Lab (15EIL38)	3
		Analog IC Lab (10EIL57)	5
6	LAB6	Analog Electronic Circuits Lab (15EIL38)	3
		Analog IC Lab (10EIL57)	5

**Table(f) List of Labs held in each physical laboratory during
even semester of Academic year 2015-16**

Sl. No	Labs Name	Labs Conducted during Even semester (Feb-June 2016)	Semester
1	LAB1	Instrumentation Lab (10ITL68)	6
2	LAB2	Project Lab	8
3	LAB3	HDL Lab (10ESL48)	4
		Microcontrollers Lab -Assembly programs (10ESL47)	4
4	LAB4	Microcontrollers Lab -Interfacing programs (10ESL47)	4
5	LAB5	Instrumentation Lab (10ITL68)	6
6	LAB6	Control System & Data Converters Lab (10ITL67)	6

Along with these major labs, students also learn new and extra labs beyond the curriculum for their improvement in technical skills. Beyond the syllabus students are encouraged to learn

- Python programs in LAB 2
- Multisim programs in LAB 2 and LAB 3

Table shows the details of the number of students in each lab, equipment used in the laboratories as well as the details of the technical staff (the support of the manpower) in each and every laboratory.

It is made mandatory in EIE department that students will do all the hardware as well as software experiments/programs individually. Accordingly, necessary arrangements are made in the laboratories. This increases the confidence and performance of the students to do any lab individually, also students will be confident enough to take up projects at lower semesters itself.

Manpower in EIE Department: availability of adequate technical supporting staff.

- For every lab conduction, one Lab Instructor and one lab assistant are provided to issue components and assist in debugging of the experiments.
- Table shows the list of the technical staff of EIE Department.

EIE Department technical staff

Sl. No	Name	Designation
1	Mohan Kumar	Instructor
2	Ambika	Instructor
3	Venkatesh	Mechanic
4	Ganapathi	Lab Assistant
5	Umesh	Subordinated Staff
6	Mahadev	Peon cum Driver

Weekly Utilization of Laboratory and Manpower

Sl. No.	Lab	No. of students per setup (Batch Size)	Name of the important equipment	Weekly utilization status (all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the technical staff	Designation	Qualification
1	LAB 1	1 student per setup (13)	Personal Computers, Level, Temperature, Flow & Pressure process controller, Compressor, Labview & DAQ Cards, PLCs	Process control Lab (15EIL77/ (10EIL78) Utilization: 4x3hrs	Mohan Kumar	Instructor	Diploma in E& C
				Process control Lab (10ITL78) Utilization: 3x3hrs	Mailarappa	SSLA	ITI (Electrician)
2	LAB 2	1 student per setup (13)	Computers, Octave Software, DSK kits TMS320c6711, ARM Cortex M3LPC1768 Evaluation Board with peripherals (transferred from ECE), Keil μ Vision4 Software	ARM Processor Lab (15EIL77) Utilization: 4x3hrs	Ambika	Instructor	DEC (AMIE)
				Digital Signal Processing Lab (15EIL58/ 10EIL67/ 10ITL77) Utilization: 2x3hrs	Ganapathi	SSLA	JOC (Carpenter)
3	LAB 3	1 student per setup (15)	FPGA Spartan 3 Kit Personal Computers, Xilinx ISE software, Turbo C software, Motors- DC, Stepper motors, Interfacing cards	HDL Lab (10ECL48/17EIL38) Utilization: 2x3hrs	Ambika	Instructor	DEC (AMIE)
				Microcontroller Lab (10ESL47) Utilization: 2x3hrs	Ganapathi	SSLA	JOC (Carpenter)
				OOPS with C++ Lab (15EIL68) Utilization: 3x3hrs			
				Virtual Instrumentation Lab (15EIL76) Utilization: 4x3hrs			
4	LAB 4	1 student per setup (15)	AT89C51ED2 Boards, Personal Computers, Keil μ Vision Software, Interfacing cards, Stepper motors, DC Motors, Elevator, ADCs and DACs, Hex Keypad, LCDs, 7-segment LED display	Embedded Controllers Lab (15EIL48) Utilization: 2x3hrs	Ambika	Instructor	DEC (AMIE)
				Microcontroller Lab(10ESL47)- Interfacing programs Utilization: 2x3hrs	Venkatesh	Mechanic	Diploma in TC
				Micro processor Lab (10EIL58/ 10EIL58/10ITL58) Utilization: 3x3hrs			
5	LAB 5	1 student per setup (15)	IC Trainer kits, Wheatstone bridges, Kelvin Bridge, Maxwell Bridge, Schering Bridge, Crompton DC, potentiometer, LVDT, Load cell, Strain Gauge, LDR setup,	Digital Design Lab (10ESL38/ 17EIL38) Utilization: 2x3hrs	Mohan Kumar	Instructor	Diploma in E& C
				Instrumentation and Measurement Lab (15EIL48) Utilization: 2x3hrs	Venkatesh	Mechanic	Diploma in TC
				Data Acquisition Lab (15EIL57) Utilization: 2x3hrs			
				Instrumentation and Control Lab(10EIL68) Utilization: 3x3hrs			

				Instrumentation Lab (10ITL68) Utilization: 3x3hrs			
6	LAB 6	1 student per setup (15)	CROs, Function Generators, Multimeters, Ammeters, Voltmeters, IC Spring boards, Transistor Spring Boards, Fixed power supplies (5v, +/- 12v)	Analog Electronic Circuits Lab (17EIL37/10ESL3) Utilization: 2x3hrs	Mohan Kumar	Instructor	Diplom a in E & C
				Signal Conditioning Circuits Lab (17EIL57) Utilization: 2x3hrs			
				Power Electronics, Controls and communication lab (15EIL67/ 10EIL68/10EIL77) Utilization: 3x3hrs	Mailarappa	SSLA	ITI (Electri cian)
				Analog IC Lab (10ITL57/10EIL57) Utilization: 3x3hrs			
				Control systems & Data Converters Lab (10ITL67) Utilization: 3x3hrs			



Glimpses of the laboratories of the EIE Department

Manpower in EIE Department: availability of qualified technical supporting staff.

- The Lab assistants are well trained to solve the problems of the students anytime, during conducting the programs or experiments.
- Along with technical support in the laboratories, EIE Department technical staff also carry out additional services as shown in the table 6.1.3

Additional services by technical staff

Sl. No	Lab Technician	Qualification	Additional services by technical staffs
1	Mohan Kumar	ITI, Diploma in ECE	<ul style="list-style-type: none"> ➤ Trouble shoots analog electronics & IC circuits, power electronics and instrumentation experiments ➤ Mentors the department newsletter editorial team in use of Photoshop, CorelDRAW, etc. ➤ Prepares advertising materials such as banners, handouts, etc. for seminars, workshops, open house, conferences, etc. ➤ Maintains stock book, day book, issue registers, etc. ➤ Provides consultancy to college telephone exchange maintenance. ➤ Looks after upkeep of department's LAN, internet, CCTV, UPS, etc. ➤ Prepares consumables list before start of every semester and lab exam and also is involved in obtaining quotations, preparing comparative statements, etc. ➤ Repairs hardware equipment regularly. ➤ All bridges are dusted and cleaned with liquid. ➤ Regular maintenance of IC Trainer Kits.
2	Ambika	Diploma (AMIE)	<ul style="list-style-type: none"> ➤ Provides technical assistance in DSP, HDL, 8051, ARM, LD, etc. labs. ➤ Loads software to the computers ➤ Maintains virus free systems in the labs ➤ Takes care of maintenance of the FPGA, ARM, 8051 MCBs. ➤ Exam form upload, creation of batch lists, maintenance of department office files, updation of students' database, liaison with main office, etc.
3	Venkaatesh	ITI, Diploma in TC	<ul style="list-style-type: none"> ➤ Soldering of damaged patch cords, probes, pots, transistors and so on ➤ Assists in data entry of students to VTU and College websites ➤ Maintenance of department library ➤ In-charge of overall upkeep and maintenance of labs
4	Ganapati	SSLA, Carpenter	<ul style="list-style-type: none"> ➤ Issue and maintenance of LD and instrumentation labs along with semi-skilled jobs of drilling, etc.
5	Mailarappa	SSLA, Electrician	<ul style="list-style-type: none"> ➤ Maintains department's electrical status along with issue and return in hardware labs

Additional facilities created for improving the quality of learning experience in laboratories.

Availability and relevance of additional facilities in labs

- Additional facilities in labs are created to train the students, so as to **bridge the gap between industry and academia**. For example, Python programming and Multisim programming develops the programming skills and also give hands on experience in these domains.
- Creation of smaller sub batches lesser than 12 students per batch for individual experiment conduction.
- Avoiding overlap of different semester labs on same week day (say, in even semester fourth and sixth semester labs are not scheduled on the same day) to ensure smooth functioning with optimal usage of both teaching and technical staff (more individual attention can be provided). Also, almost all labs are scheduled in the afternoons, with every morning slot allotted to theory classes for **effective learning** by the students.
- Ergonomically designed hardware lab tables with tiered rack structure, so as to accommodate CROs on a higher level (better viewing of the output), with signal generators, power supplies, etc. in the middle tier, with flatter and bigger table surface at the lowest tier to spaciouly arrange the spring boards, multimeters, bridges, etc. for smoother and error free connection and debugging circuits.
- Locker facility provided in every lab for students to keep their bags leaving the work place (lab tables) clutter free, ensuring **safety**.
- Extra 8051 and PIC boards in Microcontroller lab for individual experimentation (**PO9**) and project work.
- Two Digital storage scopes in Process Control lab for taking snapshots of the real time waveforms (is also used by faculty in preparation of lab manuals).
- Hardware and software connected in-situ in all interfacing lab courses, ensuring better understanding and effective learning.
- Structured procedure in the conduction of labs such as: students are required to write the datasheets for the previous experiment/program before starting the new one **to enable recall and continuous learning**, mandatory viva voce for every experiment leading to **improvement of communication (PO10)**, creation of customized lab register for entry and assessment of student outcomes (shown in Fig. 6.2.1), etc.
- Lab Reckoner for HDL and ARM labs is created specially by EIE staff and provided to students to identify the various pin configurations in Spartan 3E boards of HDL lab and for mapping the large number of special purpose registers of each peripheral used in Cortex M3 ARM processor. This avoids the stress on students to byheart the pin numbers, command words, etc. leaving them free to comfortably concentrate on the technical requirement and logic behind each

experiment and further concentrate on extending the regular experiments, creating mini projects, **(PO12)** etc.

- There are 2 Wi-Fi routers, two 24-port switches and 40 points with **LAN connectivity** to the main college server and hence obtaining latest updates of anti-virus, software licensing, etc. for the systems at EIE lab.
- IoT center of excellence, a new program specific facility is created under which students of 7th semester 2015-19 batch carried out their internship program for duration of 4 weeks. This helped 31 students to meet the curricular gap of modern tool usage, life long learning, team work, etc.
- Seminar presentations, Project presentations and Pre-Ph.D comprehensive Viva is recorded using HD CCTVs installed in the labs.

Fig: Customized Lab Register to enable structured Assessment of Observation, preparedness & lab conduction (O), Record Writing (R), Viva voce (V) and Total marks (T) for each experiment

Facilities, Utilization and effectiveness

- C++ lab was scheduled as a regular lab session (3x3hrs/week) for 2013-17 batch and previous IT batch students in accordance with the theory so as to develop good programming skills, thus enabling them to compete in many technical exams for their career development. Currently C++ is incorporated in the new curriculum itself.
- Python programming lab was conducted (by faculty Mrs. Sandhya & co.) for 2015-19 batch students during last 40 minutes of DSP lab session every week to upgrade students to industry standards. An abridged version of this lab was provided as the introductory hand on to 2017 admitted first year EIE students.
- Multisim programming lab was conducted along with AEC lab (by faculty Mrs. Madhura & co.) for 2016-20 batch students (and also previous batches) so that they were able to design and develop debugging skills for analog circuits.
- Open CV software is installed in few systems so that students would be able to learn image processing techniques in-line with theory which is a part of curriculum and be able to perform operations such as image sharpening, enhancement, etc. Six batches of UG & PG students have already utilized this facility under the supervision of Associate Professor Manohar P (**PO5, PO6, PO9, PO12, PSO2, PSO3**).

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- Additional docking software is installed in one system to visualize protein ligand interaction which is utilized by faculty and students for research (**PO12, PSO2, PSO3**). Five batches of UG & PG students have already utilized this facility and currently one batch of final year students are utilizing the same.
 - Final year students use Wi-Fi browsing room for accessing international journals, IEEE papers and many other publications for implementing their projects and also identifying the topics relevant to recent trends and technologies in instrumentation and inter disciplinary domains for seminars (**PO4, PO6, PO9, PO10, PO11, PO12, PSO1, PSO2, PSO3**).
 - Students use PLC setups and PLC simulators (by faculty Mr. Chetan and Mr. Srikanth) to implement ladder diagram programs for physical variables in their regular Process control lab sessions along with curriculum experiments so as to develop programming skills which may be used in implementing projects based on PLCs (**PO4, PO12, PSO1, PSO2, PSO3**).
 - Latest IoT technologies available on the net viz., Xively, IBM Watson, etc. were investigated by faculty Mrs. Sneha, Mrs. Shalini and Mrs. Sandhya in even semester of 2017-18 academic year. Mini-projects using Arduino for sensor interfacing and acquiring process variables such as temperature, humidity, etc., uploading to the cloud (after creating an account) and trend analysis of the variables using the IoT software were carried out. These mini experiments were disseminated to final year 2017-18 batch students and has resulted in many in-house projects (**PO4, PO12, PSO1, PSO2, PSO3**).
 - Seminar hall is used on the basis of requirements such as project presentations, seminar presentations by students and lab instructions by faculty.

Relevance to POs and PSOs

- Though the VTU syllabus covers the basic and advanced topics in Electronics and Instrumentation, students find it difficult to relate to real world examples. Students are not exposed to industry environment until their last year of study. Hence this gap is overcome by students by executing mini projects related to different fields which will provide them an insight of various software and technologies used in Industries.
- To equip the students to recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change, students are encouraged to do extra labs beyond the curriculum, for example Python programming, Image processing etc.
- Most of the relevant POs and PSOs are mentioned along with the facility and need in parts (A) and (B) presented above and also in a tabular in Table below.

Table: Additional Lab Facilities

Sl. No.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students' are expected to have enhanced learning	Relevance to POs/PSOs
1	Python Programming lab	Liclipse software	To provide hands-on experience for our 1 st year students in python programming and increase their ability to participate in competitive exams and also to do mini projects	3 slots 2/3 weeks per semester (6/2/18, 20/2/18, 27/2/18)	To upgrade students to industry standard.	PO1, PO5, PSO3
2	C++ Lab for old syllabus	Turbo C Software	Practical Knowledge in Programming for 5 th sem students in-line with theory which is learnt beyond the syllabus	3 slots/ week (Aug-Nov 2015)	To develop software programming skills	PO1, PO5, PSO1, PSO3
3	Circuit Design Lab	Multisim software tool	Design and simulation of analog circuits using software	3 slots 2/3 weeks per sem (Aug-Nov2017)	To develop design and debugging Skills for analog circuits	PO1, PO5, PSO3
4	PLC setup	From VI Microsystems 6 input 4 output	Implementation of physical process executed using PLC with ladder diagram programs	3 slots/ week (Aug-Nov2018)	Programming, Simulation of physical process	PO1, PO5, PSO1
5	Software PLC simulator	Ladsim	Simulation of physical process executed using PLC with ladder diagram programs	3 slots/ week (Aug-Nov 2018)	Ladder diagram programs	PSO1, PSO2
6	Seminar Hall	Fully equipped seminar hall with portable Projector, Student Desks, Board, Cushion chairs	Lab instructions are given so that practical sessions are completely utilized for hands on experience in labs. Practical applications related videos/ presentations are also shared with the students.	3/4 slots per semester	To Bridge the gap between academic and industry curriculum	PO5
7	Wi-Fi Browsing room	Wi-Fi connectivity, tables, chairs, etc	Students can refer to various journals and paper publications	Every day during break hours	To know about recent trends in science and technology.	PO5
8	HDL Lab	Modelsim Software	Timing diagram analysis for Verilog codes	2/3 slots per semester	To verify the timing of the design-static analysis	PO1, PO5, PSO3

Note: 1 Slot=3hrs

Laboratories: Maintenance and overall ambiance

- Do's and Don'ts are displayed in each laboratory.
- All the labs are equipped with all the required instruments and are all well maintained.
- All the labs are provided with the big tables, rotating chairs, fans.
- Labs are equipped with sufficient hardware and licensed software to run program specific curriculum and off program curriculum.
- Maintenance of the instruments are carried out on a Quarterly basis and also when necessary.
- UPS maintenance and servicing done by in-house staff and also through AMC.
- Calibration of the instruments is carried out quarterly.
- Technical Staffs are well trained for maintenance.
- Conditions of chairs/benches are monitored on a regular basis.
- Adequate light and air in the laboratories.
- Huge windows and window curtains are provided in laboratories for good visibility.
- White/green boards are provided in each laboratory.
- LCD Projectors are provided whenever necessary for the explanation of the programs/experiments.
- Laboratory Manuals are distributed to students.

Project laboratory

Table: Facilities and Utilization of Project Laboratory

SLNO	FACILITIES PROVIDED	UTILIZATION
1	DSP kits	UG students, Research Scholars and Faculty members utilize for their mini projects, projects, and research activities
2	Keil micro vision software tool and Microcontroller 8051, MSP 430 kit in Microcontroller Lab	UG students utilize for their mini projects and final year projects
3	Xilinx ISE version 9.1 software and FPGA Spartan 3E kits for designing and synthesizing of digital circuits.	UG students, Research Scholars and Faculty members utilize for their mini projects, projects, and research activities
4	Workshop for fabrication and soldering purpose shared with Mechanical department	UG students, Research Scholars and Faculty members utilize for their mini projects, projects, and research activities
4	Wi-Fi Browsing room	UG students, Research Scholars and Faculty members utilize for accessing research papers, journals and publications
5	LabVIEW software	UG students, Research Scholars and Faculty members utilize for their mini projects, projects, and research activities
6	Flow, Level, Temperature, Pressure station loops	UG students utilize to implement projects solely related to Instrumentation
6	Seminar Hall	UG students, Research Scholars and Faculty members utilize for presenting seminar and project presentations.
7	Additional docking software to visualize protein ligand interaction	Final year UG students utilized for implementing the project. 2015-16, 2016-17 even semester
8	IoT Centre of Excellence- Internship	Utilized by 7 th semester students to develop projects based on IoT July-Aug 2018

Safety measures in laboratories

Below listed are few common safety measurements that have been provided in all the laboratories.

- ✓ Laboratory Uniform is made compulsory for all the students inside the lab
- ✓ All laboratories are well ventilated.
- ✓ Fire Extinguisher in case of emergency
- ✓ All the labs are cleaned every day.
- ✓ First Aid Kit is provided in case of emergency.
- ✓ Use of mobile phones is prohibited inside the laboratories.
- ✓ All the equipment are well maintained and serviced periodically.
- ✓ Damaged equipment are identified and serviced at the earliest.
- ✓ LDR setup and incandescent bulbs are housed in wooden boxes.
- ✓ Tiles are being placed on tables in Lab 5 in order to protect the table from water spill, when students use water kettles for few experiments

Sl. No.	Laboratory	Safety Measures
1	LAB 1	<ul style="list-style-type: none">✓ Properly earthed✓ Each table has 2 pole, 16A MCB protection✓ All the equipment/power modules have in built fuse protection✓ Rubber mats for safety of the staff and students✓ High definition Cameras are installed in the laboratories for the safety of laboratory equipment and student's materials.✓ Racks are available for the safety of the student's bags✓ Do's and Don'ts board are provided in the lab✓ Electrical wires protected by MCB and fuses
2	LAB 2	<ul style="list-style-type: none">✓ Properly earthed✓ All the equipment/power modules have in built fuse protection.✓ Fully and rightly loaded PC Systems with needed software are readily available for students' usage.✓ Racks are available for the safety of the student's bags✓ High definition Cameras (CCTV) is installed in the laboratories for the safety of laboratory equipment and student's materials.✓ Do's and Don'ts board are provided in the lab✓ Electrical wires protected by MCB and fuses
3	LAB 3	<ul style="list-style-type: none">✓ Properly earthed✓ Fully and rightly loaded PC Systems with needed software are readily available for students' usage.✓ Racks are available for the safety of the student's bags✓ High definition Cameras (CCTV) is installed in the laboratories for the safety of laboratory equipment and student's materials.✓ Do's and Don'ts board are provided in the lab✓ Electrical wires protected by MCB and fuses
4	LAB 4	<ul style="list-style-type: none">✓ Properly earthed✓ Fully and rightly loaded PC Systems with needed software are readily available for students' usage.✓ Racks are available for the safety of the student's bags✓ Do's and Don'ts board are provided in the lab✓ Electrical wires protected by MCB and fuses

5	LAB 5	<ul style="list-style-type: none"> ✓ Properly earthed ✓ Each table has 2 pole, 16A MCB protection. ✓ All the equipment/power modules have in built fuse protection. ✓ Rubber mats for safety of the staff and students ✓ Racks are available for the safety of the student's bags ✓ Do's and Don'ts board are provided in the lab ✓ Damaged equipment are identified and serviced at the earliest ✓ IC checker is provided to check the working of IC before and after using ✓ Electrical wires protected by MCB and fuses
6	LAB 6	<ul style="list-style-type: none"> ✓ Properly earthed ✓ Each table has 2 pole, 16A MCB protection. ✓ All the equipment/power modules have in built fuse protection ✓ Racks are available for the safety of the student's bags ✓ Do's and Don'ts board are provided in all the labs ✓ Electrical wires protected by MCB and fuses

Lab Instructions for software Labs

Dos

- Ensure your presence five minutes before the commencement of the Lab.
- Attend all the lab sessions without fail.
- Always wear your uniform and ID cards in the lab
- Come well prepared for every lab session with logic, coding, and testing
- Bring the lab records duly written and get corrected by the instructors
- Work on the academic problem/experiments /project assigned or authorized by instructors.
- Ask for assistance from an instructional assistant.
- Save your files on your own your respective working directories
- Properly exit all software applications at the end of each work sessions
- Leave the belongings and footwear in the respective places earmarked.
- Use the computers as much as you need for accadmics purposes.
- Treat the computers with care
- Keep the space around you clear for others
- Upload the discipline and ethics of RNSIT

Dont's

- Bring cell phone, food or drinks in the lab.
- View files/illegal materials/offensive websites or chat or ply games
- Harass other users verbally or physically.
- Create or interduce computer viruses.
- Alter the configuration or contents of hard disk drives and restricting access to or damage computer systems or data
- Alter/Damage the data/programs belonging to another user.
- Install software without permission
- Try to fix computer or printer without permission
- Use CDs or pen drives without permission

Lab Instructions for Hardware Labs

Dos

- Ensure your presence five minutes before the commencement of the Lab.
- Attend all the lab sessions without fail.
- Always wear your uniform and ID cards in the labs
- Ensure cleanliness of the work place and the instruments used
- Replace the equipment/components at the proper place after use
- Avoid shifting of equipment from one table to another.
- Procure components only after entry in the indent register and return after use
- Handle electronic components like diode transistors, resistors, etc. with care to ensure that the leads are not broken
- Wear proper footwear for safety
- Come fully prepared for the experiments with circuit diagrams design and data sheets.
- Submit the record for the previous experiment conducted in time.
- Use instruments like oscilloscope, function generators, power supplies, etc. only after thorough understanding of their working and safety measures.
- Conduct the experiment only after the circuits connections have been approved by the staff members.
- Always test the components and equipment before you start the experiments
- Always ensure that the proper rating of power supplies is being used

Don'ts

- Wear loose garments as they are unsafe near machines.
- Litter the lab.
- Leave the muddy footprints on the walls.
- Clutter up the working tables with books and other irrelevant materials
- Mishandle the instruments while issue and return
- Disturb the smooth conduct of the lab.
- Take out any equipment/ component from the lab. Severe punishment will be enforced if any student is found to do so.

Note:

- Students are requested to strictly adhere to the prescribed rules
- Severe action will be taken against defaulters.
- Students who damage the equipment will be fined accordingly.
- Irregularity and misbehavior will lead to the detention of the student in the lab.

Fig below show the snapshots of Do's and Dont's boards of the hardware and software laboratories.

LAB INSTRUCTIONS

DO's

- Ensure your presence five minutes before the commencement of the Lab.
- Attend all the lab sessions without fail.
- Always wear your uniform and ID cards in the labs.
- Ensure cleanliness of the work place and the instruments used.
- Replace the equipment/components at the proper place after use.
- Avoid shifting of equipment from one table to another.
- Procure components only after entry in the indent register and return after use
- Handle electronic components like Diodes, Transistors, resistors etc. with care to ensure the leads are not broken.
- Wear proper footwear for safety.
- Come fully prepared for the experiment with circuit diagram, design and data sheets.
- Submit the record for the previous experiment conducted, in time.
- Use instruments like Oscilloscope, function generators, power supplies etc. only after thorough understanding of their working and safety measures.
- Conduct the experiment only after the circuit connections have been approved by the staff member.
- Always test the components and equipment before you start the experiment.
- Always ensure that the proper rating of power supplies is being used

DONT'S

- Wear loose garments as they are unsafe near machines.
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RNS Institute of Technology, Department of Instrumentation Technology.

Do's and Dont's of hardware labs

LAB INSTRUCTIONS

DO's

- Ensure your presence five minutes before the commencement of the Lab.
- Attend all the lab sessions without fail.
- Always wear uniform and ID cards in the labs.
- Come well prepared for every lab session with logic, coding, and Testing.
- Bring the lab records duly written and get it corrected by the Instructors
- Work on academic Problems /Experiments/ Projects assigned or authorized by Instructors.
- Ask for assistance from an instructional assistant.
- Save your files on your own respective working directories
- Properly exit all software applications at the end of each work session.
- Leave the belongings and footwear in the respective places earmarked.
- Use the computers as much as you need for academic purposes.
- Treat the computers with care
- Keep the space around you clear for others
- Uphold the discipline and ethics of RNSIT

DONT'S

- Bring cell phone, food or drinks to the labs.
- View files/illegal materials/offensive websites or chat or play games
- Harass other users verbally or physically.
- Create or introduce Computer viruses.
- Alter the configuration or contents of hard disk drives and restricting access to or damage Computer systems or data.
- Alter/Damage the data/programs belonging to another user.
- Install softwares without permission
- Try to fix a computer or printer without permission
- Use CDs or Pen drives without permission

Note

RNSIT treats systems safety and security very seriously. Any misuse of computers and their accessories, programs, or data will result in termination of computer usage privileges and may lead to disciplinary action.

RNS Institute of Technology, Department of Instrumentation Technology

Do's and Dont's of software labs