ASHU Lab

Sl No.	Name of the Laboratories
1.	Physics I lab and Dark room 1
2.	Physics II lab and Dark room 2
3.	Chemistry Lab I
4.	Chemistry II lab
5.	Language Lab 1
6.	Language Lab 2
7.	Workshop/Manufacturing Practice Lab
8.	Engineering Graphics & Design Lab

- Department has 8 laboratories which are used throughout the year as per the timetable to meet the curriculum requirements.
- Chairs/benches/desks are in good condition. Chairs are provided for individual students in laboratories.
- Laboratories are equipped with sufficient machineries and equipments to run program specific curriculum and beyond curriculum activities.
- Sufficient laboratory manuals are distributed among the students.
- Lighting system is very effective, along with the natural light in every corner of the laboratories.
- Emergency light connections available in the laboratory in case of power failure.
- Each laboratory is equipped with a whiteboard, computer with internet connectivity and such other amenities.

Physics I lab and Dark room 1

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Physics I lab	30	Viscometer +Travelling microscope+Stopwatch+Meascylinder+Thermometer+Cap tube	1. Determination of Young's modulus by Flexure method
		Meter bridge + Galvanometer + Res box+ Battery + Resistance	2. Determination

			of Rigidity modulus by statical and dynamical method
		Travelling microscope with lens+ Na lamp	3. Verification of Bohr's atomic orbital theory through Frank-Hertz experiment.
		Optical bench+ Na lamp with P/s unit+ Biprism	4. Calibration of an oscillator using Lissajous Figure.
		Laser source+ sprctrometer+ detector	5.Determinatio n of Q factor using LCR Circuit.
Dark room 1	30	Prism+ spectrometer+ Hg/Na lamp with P/s	6. Determination of wavelength of light by Newton's ring method
		Rigidity mod measuring instrument+ Lamp scale arrangement+ screw gauge+ weight box+ physical balance	7. Determination of wavelength of light by Laser diffraction method.
		Y det apparatus+ traveling microscope+ load	8. To determine the angle of optical rotation of a polar solution using polarimeter.
		Transmitter&Receiver kit +Digital multimeter	9. Determination of Planck's constant using photoelectric cell.

Physics II lab and Dark room 2

Name of the Laboratory	No. of students per	Name of the Important equipment	Experiments conducted

	setup **(Batch Size)**		
Physics I lab	30	Band gap kit +Oven +Thermometer + Sample: Ge/ Si	1. Measurement of specific charge of electron using CRT.
		Ballistic gal+ Res box + Battery + Lamp scale arrangement + Commutator	2. Determination of band gap of a semiconductor.
		CRT with power supply+ Magnetometer	3. Determination of Hall co-efficient of a semiconductor and measurement of Magnetoresistance of a given semiconductor
		Prism+ spectrometer+ Hg/Na lamp with P/s	
		Lee's apparatus+ thermometer+ Cu boiler+ hot plate+ traveling microscope	4. Study of dipolar magnetic field behavior.
		Searles apparatus + thermometer + hot plate	5. Study of hysteresis curve of a ferromagnetic material using CRO.
		Thermocouple+ Potentiometer+ glass beaker	6. Use of paramagnetic resonance and determination of Lande-g factor using ESR setup.
		DC determination apparatus+ CRO	
		RC determination apparatus+ spectrometer+ EHT source for discharge tube+ prism	7. Determination of dielectric constant of given sample (frequencydependent)/Measurement of losses in a dielectric using LCR circuits.
		Photo voltaic cell+ optical filters	
		RF oscillator+ CRO+ ESR spectrometer+ Helmholtz coil	
		Const; current power supply+ electromagnet+ Hall effect setup+ digital Gauss meter	8. Determination of Stefan's radiation constant.
Dark room 1	30		9. Study of I-V characteristics of a LED.
		Stefan's constant kit with EZ 81	10. Study of I-V characteristics of a LDR
		1.BH &h ysteresis loop: sscientific make dual channel CRO 30 Mhz. model no Sm-410-SL NO 170729904& 170729901	11. To study areal characteristics and spectral response characteristics of photo voltaic solar cells & measurement of maximum workable power

		A comlete set up to Study of Transducer property: Model: STT-01 make SES/ TECHNO INSTRUMENT ROORKEE [consists of – oven ,milli voltmeter, temperature controller]	

Chemistry Lab I

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Chemistry Lab I	30	Digital Balance	**1. Preparation of primary and secondary standard solution**
		Analytical Balance	**2. Standardization of secondary standard solution by primary standard solution**
		Chain Metic Balance	**3. Determination of hardness of water sample by EDTA method**
		Digital pH Meter	**4. Determination of Chloride ion concentration in water sample by Argentometric titration**
		Digital Conductivity Meter	**5.Estimation of Iron in given Mohr salt solution by permanganometry titration**
		Magnetic Stirrer	**6. Determination of Partition coefficient of a solute in a two phase heterogeneous system**
		Distillation Plant (Steel Body)	**7. Qualitative analysis of Inorganic salt sample by dry and wet test.**
		Double Distillation Plant (Glass Body)	**8. Conductometric titration**
		Stop Watch (Diamond)	**9. pH metric titration**
			10. Determination of relative viscosity by Ostwald viscometer
			11. Innovative expt.: Preparation of Silver Nano particle

Chemistry II and Environment Lab

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Chemistry Lab II	30	Heating Mantle with Thermostat	**Chemistry II Lab**
		Digital Balance	1. Qualilative analysis of organic functional groups
		Microprocessor UV-Vis Spectrophotometer	2. Identification of acid and basic radicals in Inorganic salt sample by dry and wet test.
		Water Distillation Plant	3. Determination of rate constant of Ester hydrolysis
		Rotary Evaporator	4. Preparation of Potash Alum.
		Refrigerator-180L, LG	5. Preparation and characterization of silver nano particle
		Vaccuumm Pump	6. Bakelite preparation
		USB Wireless Remote Control LASER Pointer	**Environmental Engineering Lab**
			1. Determination of Water quality parameter: TDS
			2. Determination of Water quality parameter: TSS
			3. Determination of Water quality parameter: TS
			4. Determination of Chloride ion concentration in water sample by Argentometric titration
			5. Determination of Dissolved oxygen in a given water sample
			6. Determination of BOD in a given water sample
			7. Determination of COD in a given water sample

Language Lab 1

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Language Lab 1	30	250 RMS SplQlty Audio Mixing Amplifier	Listening Activities (Predictive, Inferential, Selective, Empathetic,
		Audio Dual Cassette Recorder (Norge)	Comprehension & Note-taking)
		12 W two way- Ceiling mounting type loudspeaker (Bose)	Academic Listening (Seminar/Lecture/Talk)
		Answering-Listening Unit (Bose)	Business Listening-I (Sales & Advertising/Product Performance
		Gooseneck slimline microphone with headphone (Koss)	Review/Business Process & Marketing)
		DVD-CD Player (Panorama)	Business Listening-II(Business Telephony—Client Interactions)
		CD/Audio Cassette Player (Sony)	Business Speaking (Meetings/Seminars/Presentations)
		8-channel Audio Pre Amplifier or Mixer(Bose) +RDS (Natural Sound)+Arial	Business Speaking (Client Interactions)
		Recording Table	Conversation Practice
		Table (Cubicle for 3 students)	Pronunciation Activities: • Identifying Phonemic Sounds • Phonemic Transcription • Drilling, Pair & Group Work • Sound recording, Stress & Intonation Practice Work
		Wooden Stage + Podium	
		Teacher's Table	
		26" LCD TV (with stand) (Philips)	
		PC (HCL)	
		PC (Lenovo)	
		Video Recorder (Sony)	
		Voice Recorder (Sony)	Audio Recording Activities
		Cordless Microphone (Ahuja)	Video Recording Activities

		Audio speaker + Woofer (Creative)	Audio & Video Editing
		Printer (Deskjet)	Making a Documentary/Animation Film
		DLP Projector (LG	Editing a Documentary/Animation Film

Language Lab 2

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Language Lab 2	30	Ceiling Speakers	Listening Activities (Predictive, Inferential, Selective, Empathetic, Comprehension & Note-taking)
		Amplifier	Academic Listening (Seminar/Lecture/Talk)
		PA Gooseneck Microphone	Business Listening-I (Sales & Advertising/Product Performance
		GMB-6 Microphone Desk Stand	Review/Business Process & Marketing)
		Headphones	Business Listening-II(Business Telephony—Client Interactions)
		Computers (with LCD monitor), inbuilt microphone and CD drives.	Business Speaking (Meetings/Seminars/Presentations)
		LCD Projector (ceiling mounted type) with screen	Business Speaking (Client Interactions)
		Teacher’s Table	Conversation Practice
		Stage	Group Discussion
		Podium	Pronunciation Activities: • Identifying Phonemic Sounds • Phonemic Transcription • Drilling, Pair & Group Work • Sound recording, Stress & Intonation Practice Work
		GD Table	
		Student tables & benches	Audio Recording Activities
		Voice Recorder (Sony)	Video Recording Activities

		Scanner (Flatbed)	Audio & Video Editing
		Laptop (HP)	Making a Documentary/Animation Film
		Lanrack	Editing a Documentary/Animation Film

Workshop/Manufacturing Practice Lab

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Workshop/Manufacturing Practice Lab	30	Centre Lathe (Bed length 4.5'x11"width,height of center 9")	1. Fitting Shop: Making 'v' groove on a ms plate.
		Universal Milling Machine (Table size 30"x 7")	2. Welding Shop: • To prepare a butt joint using m.s. plates by Manual Metal Arc Welding techniqu e • To prepare a butt joint using
		Shaping Machine (Stroke length 12")	
		Pillar Drill Machine (Capacity 1")	
		Grinding Machine (Wheel 8"x 1"x 3/4", 0.75 HP, 3 ph 440V motor)	
		Power Saw Machine (350mm x 32mm x 8 tpi, capacity to cut 6"dia	

		round bar)	m.s. plates by Gas Welding techniqu e
		□ Welding Transformer (2 phase, current range 60A-350A, Input voltage 220V-440V, Air cooled)	3. Machine Shop: • To make a pin from a mild steel rod in a Lathe. • To make rectangul ar and vee slot in a block of cast iron or mild steel in a Shaping and / or Milling Machine.
		□ Welding Machine (TP-1500, comprising of power source ,TP-1500, Earth cable 16 sq. mm, welding cable 16 sq. mm)	
		□ Spot Welding Machine (10 kVA input)	
		□ Sheet Bending Roller (3ft, 20 SWG sheet)	4. Carpentry Shop: To make wooden joints and/or a pattern
		□ Edge Folding Machine (24" x 20 SWG)	5. Electrical &Electronics: House Wiring, Soft Soldering
		□ Single Arm Ball Press Machine (Die setting space 9 inch x 5 inch with two no. balls)	6. Smithy Shop: A simple job of making a square rod from a round bar or similar

Engineering Graphics & Design Lab

Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Experiments conducted
Engineering Graphics & Design Lab	30	AutoCAD 2017 Software	1. Lines, Lettering, Dimensioning, Different types of scale
			2. Geometrical Construction and Curves
			3. Projection of Points, Lines, Surfaces & Solids, Isometric Projection
			4. Sectional Views & Development of Surfaces
			5. Overview of Computer Graphics
			6. Cad Drawing, Customization, Annotations, Layering