Supporting Document

Criteria	**Criterion 4 – Infrastructure and Learning Resources**
Key Indicator	**4.1 Physical Facilities**
Metric 4.1.1	*The institution has adequate facilities for teaching - learning. viz., classrooms, laboratories, computing equipment, etc.*

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Details of laboratories in various departments in campus

Name of the Department	Laboratory Name	Equipment / Instrument Details	Special distinguishing features
Department of Environmental Science	Environmental lab	**IKON Laminar flow** **UV VIS Spectrophotometer** **Autoclave** **Colorimer** **Muffle furnace** **Deep freezer (-20)** **Refrigerator (LG)** **Orbital Shaker Incubator (Ambient)** **Bacteriological Incubators** **Centrifuges: Laboratory** **Binocular microscope** **Neolab circulator** **pH meter** **Weighing Machine** **Water Bath** **Research Centrifuge 5000 rpm** **Incubator** **Hot air oven** **Electrophoresis with power pack** **Centrifuges** **Magnetic Stirrer With Hot plate** **Cyclo mixer** **Hot plate** **Microprocessor based pH system** **Water Bath** **Delux conductivity meter** **respirable dust sampler** **Desiccator** **Air tighter machine**	
Department Of Microbiology	Microbiology Lab	**Laminar flow hood (Horizontal 2x2 and 4x2)** **PCR (Thermocycler)** **UV VIS Spectrophotometer** **Electrophoresis with power pack**	

		Autoclave (Large Vertica and bench top) **Colorimer** **BOD Incubator** **Deep freezer (-20)** **Refrigerator (LG)** **Orbital Shaker Incubator (Ambient)** **Bacteriological Incubators** **Glass Water distillation systems (Single and Double)** **Centrifuges: Laboratory and microcentrifuge,** **Binocular microscope** **Trinocular microscope** **pH meter** **Weighing Machine** **Water Bath with PID Control** **Research Centrifuge 20000 rpm** **Colony Counter**	
Department of Electrical Engineering	Electrical Machines	**Electric Machine Trainer** **Cut section model of DC Machine** **Cut section model for Three Phase Alternator** **Cut Section model of an Induction Motor** **Cut Section model for A.C.Slipring motor** **Cut section model for Three Phase Synchronous motor** **Synchronising panel for parallel operation of A.C. Generators** **Winding and Connections Study motor** **Three phase fault analysis study trainer** **Panel for induction generator** **Panel for V-curves of auto synchronous motor** **Panel for open circuit and short circuit test on Three phase A.C. generators** **Panel for D.C. series generator/ three phase auto synchronous motor** **Panel for M-G Set D.C. compound machine / A.C. auto synchronous machine** **panel for M-G Set A.C. slipring**	

		induction motor/ D.C. compound generator **Panel for load characteristics of D.C. series generators** **Panel for Magnetization and load characteristics of D.C. shunt generator** **Three phase transformer 400/230 V,Core type,delta/star** **Three phase transformer 400/230 V,Shell type,delta/star** **Single phase transformer-3KVA,230/230 V,shell type** **Single phase transformer-2KVA,230/230 V,core type**	
	Power electronics and Drives lab	**3 phase squirrel cage induction motor speed control trainer** **3 phase HV thyristor control trainer** **Static krammer drive trainer** **3 phase AC motor fault simulator** **Four quadrant chopper circuit using power MOSFETs** **SCR application panel** **Inverter/converter panel** **Servo interface panel** **IGBT/MOSFET inverter panel** **dv/dt protection and firing panel**	
	Measurement and Instrumentation lab	**DC and AC bridges circuits panel** **Universal transducer development kit** **LVDT trainer** **Temperature calibration and measurement kit** **Pressure measurement unit** **Water level measurement trainer** **Load cell develepment** **Strain Gauge Trainer** **Electro Pneumatic Trainer System PLC based** **Advance solar trainer system** **Calibration of energy meter** **Power and power factor measurement by two Wattmeter method**	
	Control System Lab	**Resistance Measurement System** **Stepper motor Trainer System** **Stepper motor position control with Servo Interface Panel** **Synchro Transmitter Receiver Panel** **Stepper motor demonstrator panel** **Potentiometric error detector cum magnetic amplifier panel**	

		Process simulator experiment panel	
Centre for Renewable Energy	Solar Energy Lab	**Magnetic Stirrer with Hot Plate** **Five Position Magnetic stirrer with hot Plate** **Hot Air Oven** **Rotary Evaporator Programmable** **Weighing Balance** **Ultrasonic Cleaner** **Box Furnace** **schlenk line with Fumehood** **Spin Coating Unit**	**Heating and Stirring at 500 C** **Heating and Stirring** **For organic materials synthesis** **Heating at 1200 C** **For Synthesis of Materials** **For thin film fabrication**
	Extended Facility Under CAFMC	**Field Emission Scanning Electron Microscope (FE-SEM):** **X-Ray Diffractometer (XRD) (Rigaku Smartlab 9kW)** **Thermal Constant Analyzer** **Acoustic Particle size analyzer** **Fourier Transform Infrared (FT-IR) Spectrometer** **UV-Vis Spectrophotometer**	
Department Of Biotechnology	Biotechnology Lab	**Laminar flow hood (Horizontal)** **PCR (Thermocycler)** **UV VIS Spectrophotometer** **Electrophoresis with power pack (H&V)** **Autoclave (Large horizontal, bench tops)** **Gel Doc. System** **BOD Incubators** **Deep freezer (-800C)** **Refrigerators (Godrej, BPL, Videocon)** **Orbital Shaker** **Bacteriological Incubators** **Millipore water purific. Systems** **Centrifuges: Cooling and microcentrifuge,** **Transilluminator** **Trinocular microscope (epi-fluorescence)** **Atomic absorption spectrometer** **Ultrasonicator** **ELISA Reader** **pH meters (03 No.)**	

		Glass Water distillation systems **Fermenter (Lab scale)** **Automatic Karyotyping station** **Deep freezer (-20)** **Power backup 10 KVA** **Colorimer** **Power backup 10 KVA** **Colorimer**	
Centre for Nanoscience & Technology (Rajju Bhaiya Institute)	Nanomaterials Synthesis Laboratory	**Muffle Furnace (Temperature up to 1200 C, 55L)** **Vacuum Oven (Temperature up to 260 C, 42 L)** **Hot air Oven (2; one kept in the solar cell laboratory) (Temperature up to 330 C, 62L)** **Digital analytical weighing balance (0.0001 g precision)** **Ultrasonic vibrator/cleaner** **Double distillation system (2; one kept in the solar cell laboratory)**	
	Electroanalytical and Ionics Research Laboratory	**Centrifiuge (4 x 15 mL)** **Digital pH meter** **Magnetic stirrer with hot plate (2; one digital, one alalog)** **Hydrothermal Teflon lined autoclave 100 mL (2)**	
Physics (Faculty of Engineering & Technology) (UNSIET)	(1) B.Tech. Part-I Laboratory	**B.Tech. Part-I Laboratory contains experiments based on optics, general properties of matter and electricity This laboratory contains Newton's rings experiment, plane transmissin Grarting, Polarimeters, Mutual Inductance using ballistic galvanometer, Poiseuille's method for viscosity, Young's Modulud experiment, Modulus of Rigidity experiment, Internal resistance of a Cell by potentiometer, Moment of inertia of Flywheel, Carrey Foster Bridge experiment, Helmhotz galvanometer experiment .** **This laboratiry is basically for the synthesis of Nanomterials.This laboratory contains Muffle Furnace, Hot air oven, Magnetic Stirrer, Digital pH meter, Chemical balance, Ultrasonic cleaner machine, Teflan Autoclave 100 ml and 200 ml, glass ware and chemicals.**	

Engg. Chemistry (Faculty of Engineering & Technology) (UNSIET)	B.Tech. Part-I Laboratory	**Laboratory Equipment consist of volumetric titration using Burette,Pipette, Erlyenmeyer flask, Determination of reaction rate by Graphical methods, Determination of physical propertise of Liquid by usingViscometer (Viscosity) and Stalgnometer (Surface tension)**	
		The general equipment consists of the following:	
		Beaker (Borosil)	
		Conical Flask (Borosil)	
		Burette (Glass)	
		Measuring Cylinder (Glass)	
		Stalgnometer (Borosilicate)	
		Viscometer (Borosilicate)	
		Glass Pipette	
		Colorimeter	
		Melting Point Apparatus	
		Distilled Water Assembly	
		Analytical Balance	
		Digital Balance	
Department of Biochemistry	Biochemistry Lab	**Electronic balance**	**HPB310/ Wensar**
		Centrifuge	**Cooling ultracentrifuge**
		Microwave	**MC2149BB/ LG**
		Hot Air Oven	**NSW-142/ Narang Scientific Works**
		Cyclo Mixture	**HDCM-1635/Remi**
		Hot Plate	**Tanco**
		Refrigerator	**LG Double Door GL335VVG$/2012**
		Laminar Air Flow	**IK-137/ Ikon**
		UV Lamp	**BL-6.LC/ Genei**
Department of Physics (Rajju Bhaiya Institute)	Electronics Lab	**Audio Oscillator**	
		AC Millivoltmeter	
		Active Filter	
		Analog Computation	
		30 MHz Analog Oscillator	

		A/D Converter	
		Analog & Digital Trainer	
		Astable multivibrator	
		Bread Board	
		Capacitor	
		Dual Trace Oscillator	
		Digital multimeter	
		Decade resistance box	
		Directional Coupler -H-TEE	
		D/A Converter	
		DC regulated power supply	
		Digital panel meter	
		Decade Capacitance box	
		Electron Spin Resonator	
		FET kit	
		Function Generator	
		Gunn diode	
		Klystron	
		Micro Ammeter	
		Milli Ammeter	
		Modulation and demodulation kit	
		8085 microprocessor	
		OP-AMP trainer	
		Silicon and Germanium Diode	
		SCR kit	
		Sine square oscillator	
		Transistor kit	
		Tuned collector oscillator	
		Thermometer	
		UJT kit	
		Video Amplifier	
		Variable resistance	
	Spectroscopy	**Digital Magnetic Stirrer**	
		Digital weighing balance	
		Fibre Optic Uv-vis spectrometer	
		HP Desktop	
		HP Laserjet Printer	
		He-Ne Laser	
		LED and Laser Diode	

		Laser Saving goggles **LIF Spectra device** **Laser Excited Spectra deviceZ** **Zeeman Effect kit**	
	Materials Science Laboratory	**Digital multimeter** **ESR** **Four probe kit** **Hysteresis loop tracer** **Hall effect** **HLT-111** **NMR** **Solar Simulator** **Thermoluminecences for F Centre** **Thermometer suitable for DFP-02**	
	B.Sc. Laboratories	**Bending of beam** **compound pendulum** **Energy meter** **Fly wheel** **Float capacity kit** **k of rubber** **Lee disc method kit** **Maxwell's needle** **PN Junction** **PO Box** **Spiral Spring** **Searle's apparatus** **Stefan Law** **Torsion Table** **Transistor kit** **Capacity of condenser kit** **High resistance by Leakage kit** **Mutual inductance by absolute method** **AC Frequancy by electric vibrator** **Ionization potential of mecury using thyraton valve** **Earth inductor** **DTL** **TTL** **RTL** **Transistor kit-CEFET kit**	

		Bias stabilisation apparatus **Dispersive power of prism** **Grating 15000 LPI** **Newton's ring apparatus** **Bi-prism apparatus** **Brewster's law kit** **Sinle slit apparatus** **Nodal slide apparatus** **Sextant** **Biquartz polarimeter** **Michelson interferometer** **Spectrometer** **photodiode and Phototransitor** **Double slit diffraction using laser diode** **babinet compensator** **SES ionization ofargon** **Mittal B-H curve exp** **Ultrasonic interferometer** **DSO**	
	General Physics Laboratory	**Ballistic galvanometer** **Boltzmann's constant** **computer** **Constant deviation prism & spectrometer** **Curie temperature** **DPM** **Electronic weighing balance** **Etalon** **Fourier analysis kit** **Forbidden energy band gap kit** **Fresnel formula exp** **FP etalon spectrometer** **He-Ne Laser** **Iodine Absorption spectra tube & spectrometer** **magnifying convex lens** **Polarizer** **Grating 15000 LPI** **Glass prism** **Quincke's tube** **Quartz crystal** **Travelling microscope** **Audio Oscillator 1 kHz**	

		BC107 Photo transistor **Rheostat** **Sodium Lamp** **Mercury Lamp** **Stefan's constant kit** **Ultrasonic interferometer** **Cornu's spiral experiment**
(Electronics & Communication Engg./ Electronics & Instrumentation Engg.)	Electronics Eng Lab	**Cro/Cro (Dso)** **Multimeter** **Transistor** **Voltmeter,** **Function Generator /Function Generator (Digital)** **Regulated Power Supply** **Diode** **Capacitor** **Jfet Kit** **Mosfet Kit** **Pn Junction Kit** **Zener Diode Kit**
	VLSI DESIGN Lab	**CADENCE VIRTUOSO SOFTWARE** **PC**
	CONTROL LAB	**MATLAB** **PC** **MAGNETIC FEEDBACK AMPLIFIER KIT** **SERVOMOTOR KIT** **UNIVERSAL MOTOR KIT** **STROBOSCOPE** **FEEDBACK KIT**
	ANALOG ELECTRONICS LAB	**CRO/CRO (DSO)** **MULTIMETER** **TRANSISTOR** **VOLTMETER,** **FUNCTION GENERATOR /FUNCTION GENERATOR(DIGITAL)** **REGULATED POWER SUPPLY** **DIODE**

		CAPACITOR	
		JFET KIT	
		MOSFET KIT	
		PN JUNCTION KIT	
		ZENER DIODE KIT	
	MICROWAVE LAB FIBER OPTICS AND PHOTONICS LAB	MICROWAVE TEST-BENCH	
		FIBER OPTICS KIT	
		VSWR METER	
		SINGLE -MODE FIBER	
		MULTI-MODE FIBER	
		VIBRATION FREE OPTICAL TABLE	
		LASER DIODES	
		HE/NE LASER	
		NUMERICAL APPERTURE KIT	
		COUPLER	
	COA LAB	CRO/CRO(DSO)	
		POWER SUPPLY	
		LOGIC GATE KIT	
		UNIVERSAL GATE KIT	
		MULTIPLEXER KIT	
		DEMULTIPLEXER KIT	
		DECODER KIT	
		ENCODER KIT	
		SEVEN SEGMENT DISPLAY KIT	
		RING COUNTER KIT	
		SHIFT REGISTER KIT	
		CRO(DSO)	
		FUNCTION GENERATOR(DIGITAL)	
	THERMODYNAMICS LAB	Study of water tube Babcock and Wilcox boiler Study of fire tube locomotive boiler Study and working of two stroke petrol engine Study and working of four stroke diesel engine Study and working of two stroke diesel engine Study and working of four stroke petrol engine Velocity compounded steam turbine Pressure compounded steam turbine	

Department of Mechanical Engineering	Automobile Lab	**Differential Assembly** **Simple Steering System** **Front Suspension System** **Maruti 800 Engine Model** **Gear Box** **Friction Clutch Box**	
	Computer Aided Design Lab.		
	Engineering Graphics and Design Lab		
	Theory of Machine Lab	**Band Brake** **Oldham Coupling** **Cylindrical Cam with Oscillating Roller** **Three Stage spur Gear** **Cylinder Cam with Translating follower** **Single Stage Bevel Gear** **Action of Cam** **conical fraction clutch** **Four bar Link Mechanism** **Plate cam with flat faced reciprocating follower** **Reversing gear assembly** **Kinematic Pair Table** **Simple Gear Train** **Internal Expanding Brake** **Centrifugal Clutch** **Plate clutch** **Reciprocating Engine Mechanism** **whitworth Quick Return motion mechanism**	

		Oldham Coupling **Rack and Pinion** **Rack and Quadrant gear** **Translating Cam with reciprocating Knife edge follower** **Double Shoe Brake** **Herring Bone Gear** **Single Stage spiral gear** **Gear Set** **Compound Gear Train** **End cam with translating follower** **worm Gear** **Epicyclic Gear Train (Sun and planet Type)** **Single Stage Helical gear** **Rope brake dynamometer** **Oscillating Cylinder Mechanism** **Crank shaft and cylinder mechanism** **Single stage spur gear** **Two stage spur gear** **sliding wedge Gear with straight line and accurate output** **Epicyclic Gear**	