

**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI
FACULTY OF AGRICULTURE**

LIST OF FUNCTIONAL INSTRUMENTS

DEPARTMENT OF AGRONOMY

Sr. No.	Name of Instrument	Model / Specifications
1.	Centrifuge	4000 RPM Hermle Z 16019
2.	Water Bath	-
3.	Vernier Cllipers	-
4.	Analytical Balance	AR-2140 Ohaus USA
5.	Seed counter	EGC 02 Pak-Pakland
6.	Drying Oven	350°C 100 Lit
7.	Hot plate magnet stirrer	ARE VELP Italy
8.	Power sprayer	-
9.	Balance electronic	5 M-USA
10.	Bio microscope	107 B
11.	Hand refractometer	0.32% Autogotaph
12.	Laminar flow	-
13.	Incubator	-
14.	Spring balance	-
15.	Growth Rack	-
16.	Farm Treater	Seed Treader, Hand made
17.	Baig Selling Machine	-
18.	Autoclave	-
19.	Seed moisture tester	Dickey Jhon

DEPARTMENT OF ENTOMOLOGY

Sr. No.	Name of Equipment with Model/Specs
Post-Harvest Lab.	
1.	Analytical Balance (3)
2.	Heavy Deauty sive shaker Local brand
3.	Moisture meter digital
4.	Microwave oven Dawlance
5.	Grinder cutting mill
6.	Hammer drill machine
7.	Refregerator 14ft Dawlance
8.	Multimedia (Acer)
9.	Weather monitoring station
Bio-Control Lab.	
1.	Disecting microscope(10 no)
2.	Erma microscope (2no) Model:220V
3.	Epidiscope
4.	Analytical balance Sertoris Germany
5.	Microtome
6.	Microscope compound Olympus Japan CH20 MF200
7.	Lab Cages
8.	Disecting microscope (10no)
9.	Light traps
10.	05 functional Stero microscope (kruss) (10No) MSL4330 Germany
Bio-Systematic Lab.	
1.	5 Functional Standard microscope (10no) model:107 made in china
2.	Stero swift microscope (3no) model:SM88HF Japan
3.	Binocular stero zoom microscope model:CZM-6 Lebomed USA 7no)
4.	Lecia microscope (2no) model:MS5 Switzerland
5.	Trinocular stero zoom microscope model SMZ1500 Nikon Japan
Eco Toxicology Lab.	
1.	Refrigerator model:HRF488
2.	Analytical balance TE2145
3.	Liquid chromate graph (HPLC+TLC)
Insect Molecular & Biology Lab.	
1.	Top loading balance model:BL410S
2.	Crush machine
3.	Micropipette Poland (10-100UL)
4.	Micropipette Poland (20-200UL)
5.	Micropipette Poland (05-50UL)
6.	Micropipette Poland (100-1000UL)
7.	Micropipette Poland (01-05ML)
8.	Digital balance model:IE153
Bumblebee Lab	
1.	Refrigerator Dawlance (2No)

2.	Deep freezer local brand (1no)
3.	Wood cutter
4.	Microwave oven
Apiculture farmers training laboratory	
1.	Electro forces operators (4No)
2.	Micro applicator
3.	Head space analyzer
4.	Gradient thermal cyler
5.	Conductivity meter Jenway model: 4510 UK
6.	Ph meter Jenway model: 350S UK
7.	Olympics microscope model:CH20 Japan
8.	Centrifuge Machine (D3024)
9.	PCR (Thermal Cyclor) (MG96G)
10.	UV transilluminator (MUV21-254/36J)
11.	Electrophoresis (Model – EV243)
12.	Electric Centrifuge (80-2)
13.	Microscope (OLYMPUS)
14.	Stereo Microscope (FMA050)
15.	pH meter (3505)
16.	EC meter (4510)
17.	Weight balance
18.	Hot plate stirrer (MSH-20D)
19.	Vortex Mix (VM-10)
20.	Hot water bath (HH-S4) – (WB-6)
21.	Hot water bath (WB-6)
22.	Microwave oven (PLE)
23.	Honey Extractor (2-Frame)
24.	Honey Extractor (6-Frame)
25.	Wax press Machine
26.	Honey strainer food grade plastic
27.	Uncapping tub
28.	Wax sheet making device
29.	Auto clave Machine (BKQ-501L)
30.	Oxalic acid applicator

DEPARTMENT OF HORTICULTURE

Sr. No.	Description of equipment	Model/Manufacturer
PLANT TISSUE CULTURE LABORATORY		
1.	Ploidy Analyzer (Cytometry)	CyFlow/Sysmex Partec Germany
2.	Vapor Pressure Osmometer	VAPRO-5600/WESCOR Germany
3.	Optical Microscope	BX53F2/Olympus Japan
4.	Zoom Stereo Microscope	Rz-B/Meigi Techno Japan
5.	Stereo Microscope	SM80/Swift Japan
6.	Binocular Microscope	XSZ-107BN/NOIF CNOEC China
7.	Binocular Microscope	CH-30/Olympus Japan
8.	ELISA Reader	Her 480/HT Company (Iiford) UK
9.	ELISA Automatic Microplate Washer	HEW096/HT Company (Iiford) UK
10.	Thermal Cycler PCR (Non gradient)	Biometra TOne96/Biometra GmbH Germany
11.	Gel Electrophoresis Chamber Horizontal (17cm x 7cm; 15cm x15cm; 15cm x 5cm One Each)	GES/ WEAL TEC Taiwan
12.	Gel Electrophoresis Power Supply	S-N 78444/WEAL TEC Taiwan
13.	UV Transilluminator	MD-25/WEAL TEC Taiwan
14.	Fume Hood 4.5ft x 3ft	Tehnico Scientific Lahore
15.	Laminar Flow Cabinet 5.5ft x 4ft Vertical air flow	LCB-1503B/Lab-Tech Korea
16.	Laminar Flow Cabinet 4ft x 4ft horizontal air flow	LCB-1503B/Lab-Tech Korea
17.	Dry Glass Bead Sterilizer	Steri-350/Inotech Switzerland
18.	Bacti-Cinerator III Sterilizer	14-489/Fisher Scientific USA
19.	Orbital Shaker (250 ml flask)	C-10/Brunswick Scientific USA
20.	Water Bath Shaker (Linear movement)	DKZ-2/Shanghai Jinhong Experimental Equipment China
21.	Refrigerated Centrifuge (30,000 rpm, -20°C, 50 ml round bottom tubes)	3k-30/Sigma Rotor single Knob Germany
22.	Compact Centrifuge (non-refrigerated 6000 rpm, 14 ml conical centrifuge tubes)	Z206A/Hermle USA
23.	Benchtop Centrifuge (non-refrigerated 14000 rpm, 1.5 ml rotor)	1-15/ Sigma Germany
24.	Centrifuge (non-refrigerated 14,800 rpm, 1.5 ml rotor)	1-14/ Sigma Germany
25.	Micro Centrifuge (7000 rpm, 0.5 ml-1.5 ml rotor)	D1008/SCILOGEX USA
26.	Autoclave 100 Lit	HVA-110/Hiryama Japan
27.	Autoclave 80 Lit	HL-36/Hiryama Japan

28.	Double Distillation Unit	WD-AD10/BIOBASE Bioindustry Shandong China
29.	Distillation Unit	WD-1008/Lab-Tech Korea
30.	Tissue Homogenizer	T-8/IKA Germany
31.	Spad Meter/Chlorophyll Meter	CCM-200 plus/OPTI-SCIENCES USA
32.	Dry Oven	UNE-600/Memmert Germany
33.	Micro Waves Oven 45 L	HGN 45100EB/Haier
34.	Micro Waves Oven 20 L	DW-MD4N/Dawlance
35.	Micro Waves Oven 42 L	MG -724J/LG Korea
36.	Multipoint Dryer	Technico Scientific Lahore
37.	pH Meter	Orion 4 star/Thermo USA
38.	pH Meter	HI2210/HANNA USA HI2211/HANNA USA
39.	EC Meter	Orion 4 star/Thermo USA
40.	Soil Moisture Meter	M-300/Aquaterr USA
41.	Leaf Area Meters	AM100/Analytical Development Company UK
42.	Magnetic Stirrer (370 °C, 1500 rpm)	VELP SCIENTIFICA Italy
43.	Magnetic Stirrer (370 °C, 1500 rpm)	VELP SCIENTIFICA Italy
44.	Vortex Mixer 100-2400 rpm	REAX TOP 51W/Heidolph Germany
45.	Refrigerator	91996D/Dawlance
46.	Liquid Nitrogen Vessels 35 liters	YDS-35/Chengdu Jinfeng China
47.	Weighing Balance, 0.1 mg-200 g	AX200/Shimadzu Japan
48.	Analytical Balance (0.1 g - 220 g)	JJ224 BC/ G&G Germany
49.	Weighing Balance (1g-12kg)	ELB-12K/SHIMADZU Japan
Postharvest Laboratory		
1.	Spectrophotometer	(SP-UV3000 Optima)
2.	Spectrophotometer	(UV-1602 BMS)
3.	ULT Freezer	(MDFV-73V Sanyo)
4.	Ice Maker	(FIM-100 Bio Base)
5.	Disk Miller	(FFC-15 China)
6.	Refractometer	(FG-103 Brix)
7.	Chroma Meter	(CR-410 Minolta corporation)
8.	Vernier Caliper	(01010259 China)
9.	Conductivity meter	(INOLABCOND-720 WTM Germany)
10.	Fruit Pressure Tester	(FT-327 Italy)
11.	Soxhlet Apparatus	(WHM-12391 Pyrex)
12.	Magnetic Stirrer	(VELP Scientifica)
13.	Electric Balance	(EL-600SA Shimadzu)
14.	Electro Thermal Unit	(98-1-B China)
15.	Seed Counter Digital	(ECC-02 China)

16.	Electronic Penetrometer	(BKD-020 Willow Bank Electronic)
17.	Microscope	(XSZ-107BN NOR)
18.	Dry Oven	(PA-I15-T CAHO)
19.	Electric Furness	(HM-9MP Raypa)

DEPARTMENT OF PLANT BREEDING & GENETICS

Sr. No.	Description of equipment	Model/Manufacturer
Biotechnology Lab		
1.	Microcentrifuge	Model: Sigma 1000
2.	Electrophoresis apparatus	Model: SCIE-PLAS, UK
3.	Electrophoresis apparatus (vertical)	Model: SCIE-PLAS, UK
4.	Electrophoresis power supply	Model: CONSORT, UK
5.	Microwave Oven	Model: Waves, Pakistan
6.	Refrigerator	Model: Dawlance, Pakistan
7.	Research microscope	Model: Labomed USA
8.	Stereo zoom microscope	Model: Swift, Japan
9.	Incubator shaker	Model: Heidolph, Germany
10.	Hotplate magnetic stirrer	Model: Jenway, UK
11.	Vortex mixer	Model: IKA, Heiolph
12.	Centrifuge Refrigerated	Model: Eppendorf, Germany
13.	Microcentrifuge (Minispin)	Model: Eppendorf, Germany
14.	Tissue homogenizer	Model: IKA, Germany
15.	Mini-Gel electrophoresis (vertical)	Model: BioRad, USA
16.	Autoclave	Model: Sanyo, Japan
17.	Ice flake maker	Model: Hoshizaki, Japan
18.	Liquid nitrogen container	Model: Air liquide
19.	Chilling heat blocks	Model: Eppendorf, Germany
20.	Gel documentation system	Model: BioRad, USA
21.	Ultra-low temperature freezer	Model: Sanyo, Japan
22.	Plant growth chamber	Model: Sanyo, Japan
23.	Gene pulser X cell total system	Model: BioRad, USA
24.	Bio-safety cabinet	Model: NUAIRE, USA
25.	pH meter	Model: WTW 720
26.	Top loading balance	Model: Setra, USA
27.	Moisture Balance Precision	Model: Precisa, HA60
28.	Circulating water bath	Model: Irmeco, GmbH, Germany
29.	Microcentrifuge	Model: Sigma 1000
30.	Electrophoresis apparatus	Model: SCIE-PLAS, UK
31.	Electrophoresis apparatus (vertical)	Model: SCIE-PLAS, UK
Seed Physiology Lab		
1.	Microscope Built light	-
2.	Microscope	-
3.	Microscope	-

4.	Microscope	-
5.	Microscope	-
6.	Microscope	-
7.	Microscope	-
8.	Freeze Dryer	-
9.	Projector	-
10.	Deep freezer	-
11.	Osmometer	-
12.	Infrared thermometer	-
Genetic Transformation Laboratory		
1.	Autoclave (Sanyo Labo)	
2.	Electronic Balance	-
3.	Hybridization Chamber	-
4.	Incubator Shaker Series (New Brunswick Scientific Excella E24)	-
5.	Spectrophotometer	-
6.	Hot Air Oven	-
7.	Laminar Air Flow	-
8.	Microwave Oven	-
Molecular Plant Breeding Lab		
1.	Refrigerator	(Model: PEL, Pakistan)
2.	Microwave Oven	(Model: Dawlance, Pakistan)
3.	General Water bath	(SH-WB-11GDN)
4.	Analytical Balance	-
5.	Micro Centrifuge	(Model: SCIOGEXD 3024)
6.	Vortex Mixer	-
7.	Digital Magnet Hot Plate Stirrer	(Model: SCIOGEX MS7-H550S)
8.	Electrophoresis Apparatus	-
9.	Thermal Cycler	(Model: T100™, Bio- RAD, USA)
10.	EC Meter	(Model: GLP31+ CRISON, Japan)
11.	MICROSCOPE	-
Seed Science & Technology		
1.	Hectoliter Apparatus	-
2.	Seed Germinator Cabinet	-
3.	Digital Seed Counter	-
4.	LED Microscope	-
5.	Electric Grinder	-
6.	Portable Lamp	-

7.	Digital Scale	-
8.	Seed Working Bench	-
9.	Seed Sampler	-
10.	Autoclave	-
11.	Centrifuge Seed Divider	-
12.	Seed Air Cleaner	-
13.	Boerne Seed Divider	-
14.	Hot air Oven	-

DEPARTMENT OF PLANT PATHOLOGY

Sr. No.	Description of equipment	Model/Manufacturer
PLANT TISSUE CULTURE LABORATORY		
1.	Hybridization oven	HB120
2.	Colony Counter	FX-4701
3.	Thermal Cycler	T100
4.	Ventex Mixen	So200-230v
5.	Fridge Waves	KOMBO
6.	Weighing Balance	AR2140
7.	Centrifuge Machine refrigerator	D3024R
8.	Water Bath	Wb-11
9.	Microscope	Nikon S100
10.	Microscope	Olympus
11.	Microscope	Nikon Eleipse E200
12.	Incubator	MIR-553
13.	Laminar Air Flow Chamber	Local Made
14.	Spectrophotometer	Geaesy 20, Mod. 4001/4
15.	Hot Plate	Stuart manetic stirrer hotplate, 11009
16.	Water Bath	LWB-122D
17.	UV Crosslinker	UVC100

DEPARTMENT OF FORESTRY & RANGE MANAGEMENT

Sr. No.	Description	Detail Specification
1	Analytical Balance Electric	Model-BS 1000c cup-0.01-1000g
2	Haga Tree Altimeter	
3	PH Meter with Electrode	Model 420 USA
4	Tree Increment Borer	
5	Tree Measuring Caliper	24Inch/600mm steel
6	Water Distillation	Cap.4lt/hr
7	Spring Balance	500gCapacity
8	Tree Altimeter	Imported
9	Abney's Hand level	For Survey
10	Anemometer	Model-Aum-07
11	Spring balance	1kg-100kg
12	Balance-Electronics	Shimadzu Ei-2000 Japan
13	Balance Electronics	3000gm
14	Triple beam Balance	1gm-1000gm
15	Tree Caliper	1meter length
16	Pocket Compass	
17	Conductivity meter	Model-con-5
18	Magnetic campus	
19	Castrator	
20	Dissection set student	
21	Hydrometer digital (China)	
22	Student Compound Microscope	Model(xp-12)
23	Binocular Microscope	Ut-200
24	Tripod Binocular / sporting scope	Tel wide angle lens imported
25	Binocular for wildlife study	
26	Liner distance measuring	
27	Photosynthesis apparatus	MLHD version
28	Photometer standard	
29	Plant pressing board	Wooden
30	Ranging rod	8ft
31	Relaskope	
32	Range field observatory weather station(01) railways with stand 1, weather oracle) (some parts)	Solar powered weather station
33	Telescope Measuring Rods	Model 5644
34	Shaking water bath	Model local
35	Wood moisture tester/meter	Model BD-2100
36	Water quality test kit	K 211
37	Wood workshop one set	BS1638imported

38	Wood planer	
39	Water bath	Model JB-2
40	Quadrate Iron	Im ²
41	Quadrate circular	1-2m ²
42	Top lording weighting wing	1-10kg
43	Grinding mills lab unit china (small)	Medium
44	Grinding mills lab unit china (medium)	Large
45	Hot air oven	Temperature range 220 ⁰ C
46	Vacuum oven VWR Samsung	Castex oven 35-200
47	Drying oven	Germany
48	Cooled vertical incubator	10-60c Korea
49	Laminar flow Hood Air Cabinet	Bench top stl /04ehc Singapore
50	Water bath	06 holes
51	Plant Dry Oven	Local made

Faculty of Veterinary & Animal Sciences

List of Functional Instruments

Central Laboratory

Sr. No.	Name of Instrument	Model/Manufacturer
1	SPECTROPHOTOMETER	BMS UV-1602
2	CENTRIFUGE	Centurian Scientific
3	ULTRASONIC CLEANING BATH	
4	ELISA READER	Diamate Biotechnology
5	BLOOD GAS ANALYSER	Epocal Int.
6	FLAME PHOTOMETER	Spectrolab
7	GAS CHROMATOGRAPHY	Thermo scientific Trace 1310

Department of Clinical Studies

Sr. No.	Name of Equipment	Model/Manufacturer
Lab. - 2		
1.	Binocular Microscope	-
2.	Dissecting Microscope	-
3.	Projection Microscope	-
4.	Carbon dioxide Incubator	-
5.	PH-Meter	-
6.	Vortex Mixture	-
7.	Microscope Phase Contrast	-
8.	Monopan Balance	-
Dr. Mudassir Office		
1.	Semen Analyzer	-
VMTH (Pet Clinic)		
1.	Portable Ultrasound with three probes	-
Operation Theater		
1.	Autoclave	-
2.	Ophthalmoscope	-
3.	Otoscope	-
4.	Electric Absorb Phlegm apparatus	-
5.	Electric Cautery	-
6.	Vet Anesthesia Machine	-
7.	ECG	-

8.	Endoscope	-
9.	Multi parameter patient monitor	-
Infectious Diseases Lab (IDL)		
1.	Electronic Balance	-
2.	Laminar air Flow Cabinet	-
3.	Glucometer	-
4.	Binocular Microscopes	-
5.	BOD incubator	-
6.	Blood gas analyzer	-
7.	Electronic Balance	-
Postgraduate Research Lab (PRL)		
1.	Autoclave	-
2.	Water Bath	-

Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
Faculty of Sciences
List of Functional Instruments

Department of Zoology, Wildlife and Fisheries

Sr. #	Name of Instrument	Model/Manufacturer
Animal Reproductive Physiology Lab.		
1	Distillation Water Plant	IRMECO
2	800 Centrifugal Machine	-
3	Light Microscope	IRMECO
4	Water bath	Leica
5	Dry oven	memmert
6	Cooling Cabinet	Panasonic
7	Fluorescent Microscope	LABOMED
8	Incubator	K-IN-601
9	LCD fixed microscope	Celestron
10	Slide warmer	Electrothermal
11	Vortex mixture	SCILOGEX
12	Centrifuge	HERMLE
13	Laminar Flow Cabinet	ISOCIDE
14	CO ₂ Incubator	inCusaFe
15	Hot plate	HB502
16	Weighing Balance	AND GF-300
17	Centrifuge machine	SCILOGEX
18	Thermal Cycler	BIO-RAD T100
19	Micro centrifuge	-
20	Weighing Balance	OHRUS
21	pH meter	JENCO
22	Gel plate	-
23	Incubator	Ontherm
24	Water bath	LabTech
Parasitology/ Molecular Biology & Genetics Research Lab.		
1	Gel Documentation System (Monitor, CPU)	UVCI-1100
2	PCR Machine	AC 196
3	Centrifuge Machine	Made in Germany (5417C)
4	Laminar Flow Cabinet	TECHNICO Scientific Supply
5	Fridge	Dawlance (-20)
6	Fridge	Dawlance (BF-1035-BW R)
7	Freezer	WAVES
Endocrinology Lab.		
	Microtome	Lecia

	Microscope	OLYMPUS
	Analytical balance	Pioneer
	Triple beam balance	LARK
	Microhematocrit centrifuge	Nuve NF 048
	Hot air oven	
	Hot plate	BIIBBY HB502
	Hot air oven	YCO-N01
	Gel Electrophoresis	BIOBASE
	pH meter	PHS-3C
	Gel Electrophoresis	BIOBASE
	pH meter	PHS-3C
	Gel Electrophoresis	BIOBASE
	pH meter	PHS-3C
	Gel Electrophoresis	BIOBASE
	pH meter	PHS-3C
	Gel Electrophoresis	BIOBASE

Wild Life & Ecology Lab

	Vortex Homogenizer	
	Microtome	

Mammalian Ecology and Conservation Lab (MECL)

	Thermostatic drying oven	DHG-9030
	Thermostatic drying oven	Contherm-7100
	Microtome	MEDI MES MRM-ST
	Bibby Sterlin hotplate magnetic stirrer	HB 5022
	Compound Microscope (2)	IM-900 IRMEO GMBH
	Centrifuge	800 Centrifuge
	Tissue homogenizer	ELE-ESB 500
	Straight body spotting scope	Nikon 20-60* 80 power

Department of Chemistry

Sr. No.	Instrument Name	Manufacturer
1.	Viscometer	China
2.	Melting point apparatus	China
3.	pH meter	China

Department of Botany

Sr. #	Name of Instrument	Model / Manufacturer
Plant-Nano biotechnology laboratory		
1.	Microscope Fluorescent(Leica)	Nikon 80i
2.	Microscope Research (Japan)	Olympus Japan
3.	Microtome Leica	Leica
4.	Pulsing vortex test tube shaker	VA 6 C 00 9552
5.	Hot plate with magnetic stirrer	Bibby UK
6.	Laminar flow hood(local)	GLSC LAFH 02-3624
7.	Shaking waterbath (Germany)	Memmert Germany
8.	Blotting apparatus mini	
9.	Horizontal electrophoresis	
10.	Power supply	
11.	Refrigerator Dawlance	Dawlance
12.	Orbital Shaker	China
13.	Vertical electrophoresis	
14.	Micropipette	Dragon Lab
15.	Balance electric digital	AUX220 Shimadzu
16.	Test chamber	MLR 350 H Japan
17.	Computer with accessories P4 with 17 inch sonic	China
18.	Electronic analytical balance	AED
19.	Protomvoltage regulator	DAL 3000 VA
20.	TLC tank	Shimadzu
21.	High Resolution digital image microscope with compatible PC system	M 318 E no 5
22.	HPLC(LC-20 AT)	CB-M-20 A Sr. 20234607553 CD
23.	Micropipette (100-1000ul)	Dragon Lab
24.	Micropipette (0.5-50ul)	Dragon Lab
25.	Micropipette (10-100ul)	Dragon Lab
26.	Multimedia optoma(attach with Lt3)	China
27.	Multimedia benque(chairman office)	China
28.	Acer multimedia (attach with BLR)	China
29.	Distillation plant	W 018379 FAVORIT
30.	HP laser jet printer	2015 China
31.	Spectrophotometer	
32.	pH meter	INOLAB pH 750 Germany
33.	Clinical centrifuge	China
34.	Temperature controlling unit	
35.	Vortex mixer	Europe 95567
36.	Microwave oven	China
Lab Name: Plant Taxonomy Laboratory		
1.	Microscope	Olympus Japan
2.	Refrigerator - freezer	Dawlance
3.	Hot plate	Local

4.	Electrical balance	China
5.	GPS	Germany
6.	Autoclave	Local
Phytochemical Laboratory		
1.	Hot plate	Local
2.	Magnet stirrer	
3.	2- Drying oven	Memmert Germany
4.	Muffenfurans	SX 2-5-12 China
5.	Laminar flow	GLSC-LAFH 3624 Local
Plant Physiology Laboratory		
1.	Incubator shaker	GLSC OSHR 196-11 Local
2.	Deep freezer	Dawlance
3.	Fridge	Dawlance
4.	Laminar flow cabinet	GLSC-LAFH 3624 Local
5.	Incubator	Local
6.	Weighing balance	Analytical
7.	Hot plate	Babby Germany
8.	Water bath	China
9.	Microscope	Olympus Japan
10.	Autoclave	Local
PGBL		
1.	Electric Balance	AUX-220 Shimadzu Japan
2.	Ec Meter	CONO-100
3.	Ec Meter Electric	INOLAB
4.	Microscope Dissecting	Jenco Japan
5.	Light Meter Tes-1334	Tes-1334 Taiwan
6.	Microscope Binocular	Japan
7.	Microscope Olympus Stereo	VMT No 219058 Japan
8.	Microscope Olympus School	Japan
9.	Microscope substage Illuminator	Olympus Japan
10.	Microscope Stereo Research	SEL-3 Kyowa Japan
11.	Mirror Stereoscope	Topcon 440 mm Japan
12.	Microscope Banko Japan	1015 Japan
13.	Alti Meter	Tobo Japan
14.	Lux Meter	TES-1334 Taiwan
15.	Microscope Students	XS-210 China
16.	Hygro Meter	HYT-370 W Gallenhamp
17.	Hygro Meter (soil)	China
18.	Temperature gauge	China
19.	Psychro Meter	Zeal England
20.	Soil Augar	China
21.	Tree Altimeter	Local
22.	Scientific Quadrate	Local
23.	Vernier Caliper	Local
24.	Multi Media Optoma	China S-316

25.	Multi Media Accex	S-113 China
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ARID AGRICULTURE UNIVERSITY RAWALPINDI
Institute of Food & Nutritional Sciences

List of Functional Instruments

Sr. No.	Instrument Name	Manufacturer / Model
Food Microbiology Lab		
1.	Laminar flow cabinet	China
2.	Hot Air Oven	USA
3.	Incubator	USA
4.	Magnetic Stirrer	China
5.	Microscopes	China
6.	pH meter	China
7.	Thermal Cycler (PCR machine)	USA
8.	Gel electrophoresis with power supply	China
9.	Refrigerated centrifuge	China
10.	Autoclave	Japan
11.	Refrigerator	China
12.	vortex	China
Post Harvest Technology Lab		
1.	Rotary Evaporator	Germany
2.	Soxhlet Apparatus	China
3.	Orbital Shaker	China
4.	Temperature Control Cabinet	UK
5.	Refrigerator & Freezer	Pakistan
6.	Freeze Dryer	China
7.	Nitrogen Filling Machine	China
8.	Vacuum Packaging Machine	China
9.	Oil Press Machine	China
10.	Juicer / Extractor	Pakistan
11.	Water Distillation Unit	China
12.	Viscometer	China
13.	Hand held Colorimeter	China
14.	Fruit Firmness Tester (Analogue)	Italy
15.	Ethylene Analyzer	China
16.	CO ₂ Analyzer	China
17.	Electrical Conductivity Meter	China
18.	pH Meter	China
19.	Hand held Refractometer	Japan
20.	Hot Plate	China
21.	Weighing Balance	Pakistan
22.	Firmness Tester (Digital)	China
Food Analysis Laboratory		

1.	Hot Air Oven	China
2.	Magnetic Stirrer Hot Plate	China
3.	Refrigerated Centrifuge Machine	China
4.	Orbital Shaker	China
5.	Muffle Furnace	China
6.	Water Distillation Unit	China
7.	Blender	China
Food Analysis Laboratory (KOICA)		
1.	Peanut butter machine	China
2.	Hot Air Oven	China
3.	Homogenizer	China
4.	Gerber Machine	China
5.	High Speed Blender	China
6.	Refrigerator	China
7.	High Speed Grinder	China
8.	Butter Churner	China
9.	Pasteurizer	China
10.	Stainless Steel Utensils	China
11.	Cream Separator	China
12.	Presser	China
Food Processing Research and Training Laboratory		
1.	Deep Freezer	Haier
2.	Baking Oven	Rasheed Engineering
3.	Chiller Upright pepsi	Hadari Beverages Pvt. Ltd.
4.	Microwave Oven	Dawlance
5.	Mango Pulper	Rasheed Engineering
6.	Citrus juicer	Rasheed Engineering
7.	Mixing Tank	Rasheed Engineering
8.	Dough Mixer	Kenwood
9.	Batter Mixer commercial	Rasheed Engineering
10.	Triple beam weighing balance	
11.	Deep Freezer	Haier
12.	Baking Oven	Rasheed Engineering
13.	Chiller Upright pepsi	Hadari Beverages Pvt. Ltd.
14.	Microwave Oven	Dawlance
General Nutrition Lab		
1.	Gas Oven	Pakistan
2.	Refrigerator	Pakistan
3.	Anthropometric Kit	China
4.	Bio impedance Analyzer	China
5.	Oximeter	China
6.	Blood Glucose Monitor	China
7.	Uric Acid Monitor	China
8.	Cholesterol Monitor	China

9.	Sphygmo manometer	China
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Faculty of Agricultural Engineering & Technology
List of Functional Instruments

Department of Energy Systems Engineering

Name of Instrument		Model/Manufacturer
Engineering Thermodynamics		
1	Refrigeration cycle demonstration unit	IRC-1901/EES
2	Thermocouple trainer	E-4576/EES
3	Pressure measuring bench	TH-3197/EES
4	Air operated impulse turbine	TH-5656/EES
6	Temperature measuring bench	ET-7676/EES
7	Process control trainer	IT-5200/EES
8	Fluidization and fluid bed heat transfer unit	Th-556/EES
10	Nozzle pressure distribution	TH-3197/ESE
11	Temperature and humidity chamber	TH-3132/EES
Renewable Energy Lab		
1	Mechanical Equivalent of heat apparatus	TH-3272/EES
2	Radiation heat transfer unit	TH-878/ESE
4	Thermal solar energy basic unit	TH-3281/EES
Bio-Energy Lab		
1	Biogas Process Unit	TH-3285/EES Remarks: Working, pH sensor & hot water pump is not working
2	Bioethanol Process Unit	TH-3284/EES
3	Biodiesel Process Unit	TH-3286/EES
5	Hot Plate	-
6	Centrifuge	-
Biogas Workstation		
1	Biogas Analyzer	-
3	Portable biogas digestors	-
Solar Energy Lab		
1	Director Solar Dryer	-
4	Shefler reflector	-

Department of Structures and Environmental Engineering

Sr. No	Name of Equipment	Quantity
Surveying and Leveling Lab.		
1.	Levelling staff 5m/16ft 3 fold	11
2.	Gunter Chain	06
3.	Engineer chain	05
4.	Tape	06
5.	Arrows	100
6.	Open cross staff	05
7.	Optical Square	01
8.	Trough compass	12
9.	Prismatic compass	03
10.	Abney hand level	07

11.	Telescopic alidade	01
12.	Fiber glass leveling staff (steel)	02
13.	Staff rod	09
14.	GPS	02
15.	Ranging Rod	50
16.	Electronic theodolite	01
17.	U Fork	01
18.	Plane Table	04
19.	Dumpy Level / Auto Engineers Level	08
20.	Laser Distance Meter	08
21.	Total Station	01
22.	White board	02
23.	leveler	01
24.	Plumb bob	10
CAD CAM Lab.		
1.	Computers	16
Mechanics of Materials Lab.		
1.	Simple roof truss apparatus	2
2.	Bell Crank lever apparatus	2
3.	Law of principle of moment apparatus	2
4.	Simple roof truss apparatus	2
5.	Friction on the inclined plane apparatus	2
6.	Gear model apparatus	2
7.	Moments of distribution apparatus	2
8.	Duplex screw efficiency apparatus	2
9.	Torsion and bending of beam apparatus	2
10.	Shearing forces and bending moments apparatus	2
11.	Torsion of shaft apparatus	2
12.	Worm and worm wheel apparatus	2
13.	Extension and compression of spring apparatus	2
14.	Friction of belt apparatus	2
15.	Flywheel apparatus	2
Water quality and Environmental Engineering Lab		
1.	Sound leveler	4
2.	BOD	6
3.	Turbidity meter	2
4.	Solar power meter	1
5.	Dissolve oxygen meter	2
6.	Soil survey instrument	1
7.	pH meter	1
8.	Conductivity meter	1
9.	Digital pH meter	1
10.	Analytical balance	2
11.	Shaking incubator	1
12.	Refrigerator	2
13.	Oven	2

14.	Jar test apparatus	1
15.	microscope	1
16.	Spectrafuge	1
17.	Water bath	1
18.	Solar charge controller	1
19.	Thermo reactor	1
20.	Air sampler	1
21.	Micro duster	1
22.	Spectrophotometer	1

Department of Land and Water Conservation Engineering

Sr. #	Name of Instrument	Model/Manufacturer
1.	Hydraulic Bench	Technology Links
2.	Hydrostatic Pressure and Center of Pressure Apparatus	M/S Intermark
3.	Meta Centric Height	M/S Intermark
4.	Bernoulli's Theorem Demonstration	M/s Technology Links
5.	Impact of Jet	M/S Intermark
6.	Orifice Discharge	M/S Intermark
7.	Fluid Friction Measurement in Pipes & Fittings	M/S Intermark
8.	Osborne Reynolds's Demonstration	M/S Multi Business Company
9.	Demonstration Pelton Turbine	M/S Cosmos Science Corporation
10.	Multipurpose Teaching Flume (With Basic Accessories)	M/S Intermark
11.	Sediment Transport Demonstration Channel	M/S Electrical Engineering Services
12.	Cavitation Demonstration	M/S Multi Business Company
13.	Particle Drag Coefficient	M/S Electrical Engineering Services
14.	Laminar Flow Table	M/S Intermark
15.	Multi-Pump Test Rig	M/S Intermark

University Institute of Biochemistry& Biotechnology
List of Functional Instruments

Name of Instrument		Model/Manufacturer
Industrial Enzyme Biotechnology Lab		
1	Micro-Centrifuge	Sartorius
2	Chiller	Medical Project
3	Fridge	Dawlance
4	Incubator (1)	WiseCube
5	Electrophorsis Tank	FisherBiotech
6	Laminer Flow Safety cabnit	Techno Scientific Supply
7	Vortex machine	WiseMix
8	Electronic Balance	A & Gulf
9	Water bath	Lab O Check
10	Temperature specific Centrifuge	GR Biotek
11	Shaking incubator	Wise Cube
12	Autoclave	Hirayama
13	Deep Freezer	Dawlance
14	Micropippte set	Thermo Scientific
Plant Biotechnology Lab-1		
1	Laminar Flow Hood	PAKTON
2	Laminar Flow Hood	Technico
3	Autoclave	Hirayama, Hiclave HVA-110
4	Shaking Incubator	K&K, K-SI100R
5	Incubator	Wisd. Lab Instruments, WiseCube
6	4 °C Refrigerator	KWKW, Medical Project
7	-20 °C Freezer	Dawlance, DF-400P
8	-80 °C Freezer	Wisd. Lab Instruments, WiseCryo
9	Thermal Cycler	Bio-rad, T-100
10	Transilluminator	UVITEC, CTS – 35.L
11	Gel Electrophoresis Apparatus	Consort, EV245
12	Gel Documentation System	Alpha Innotech, Alphaimager HP
13	Weighing Balance	UniBloc, AUW220D
14	Eppendorf Tube Centrifuge	Sartorius, Sigma 1-14
15	PCR Tube Centrifuge	DLAB, D1008
16	Orbital Shaker	Benchmark, Orbi Shaker Jr.
17	Vortex Mixer	PCSIR, VM1107
18	Block Heater	Stuart Scientific, SHT-100
19	Fluorescent Microscope	OLYMPUS, DP72
PAK-TGL		
1	Laminar Flow Hood	Technico
2	PCR machine	BIO-RAD
3	Vortex	Kylin-Bell
4	Centrifuge	Sartorius
5	Water bath	WiseBath
6	Gel Electrophoresis Apparatus	Consort, E815
7	Microwave oven	Dawlance

8	Digital Weighing Balance	SHIMADZU
9	Hot Plate	GR BIOTEK
10	Centrifuge	YINGTAI, TG16E
11	4 °C Refrigerator	Waves
12	4 °C Refrigerator	Medical Recorder
13	PCR machine	Eppendorf
14	HPLC	SHIMADZU
Plant Biotechnology Lab II		
1	Vortex mixer	VM-10
2	Water bath	HH-S6
3	Visible spectrophotometer	V 721
4	Water bath sonicator	E 30 H
5	Hot plate	MS-H-S
Animal Biotechnology Lab		
1	Stirring hot plate	Eppendorf (22331)
2	pH meter	Jenway (3505)
3	Eppendorf Microcentrifuge	DLAB (D3024)
4	Eppendorf Microcentrifuge	Sigma (1-14)
5	Eppendorf Microcentrifuge (Refrigerated)	ALC (PK130R)
6	Heating block/Dry bath	Heidolph (M-3002)
7	Bench top incubator	Binder (D-38532)
8	Deep freezer	Dawlance
9	Laminar flow cabinet	Fume Hood
10	Analytical balance	Sartorius (CP225D)
11	Vortex	SCILOGEX (MX-F)
12	Vortex	Wise Mix (VM-10)
13	Microwave oven	Dawlance
14	Minus 20° c Fridge	DF-400P
15	Room Fridge	Dawlance VF-1035 WB
16	Room Fridge	Dawlance 9188D
17	Room Fridge	M Project (KBPR310V)
18	UV Transeluminator	TFX-20 LC)
19	Gel Electrophoresis Apparatus	BIO-RAD (B-2300)

Institute of Soil and Environmental Sciences

Department of Environmental Sciences

Name of Instrument		Model/Manufacturer
Laboratory 1		
1	ICP-OES	Agilent 5110
2	UV-VIS Spectrophotometer	Peak International
3	Leaf Area Meter	
4	Turbidity meter	
5	DO meter	
6	Potentiostat	
7	EC meter	
8	Analytical Balance	
9	Muffle Furnace	
10	Hotplate with Magnetic stirrer	
11	Refrigerators	
12	Oven	
13	Micropipettes	Diamate
14	Water Bath	
Laboratory 3		
12	Shaking Incubator	
13	-40 Freezer	
14	Microwave digestion system	
15	Laminar flow cabinet	
16	Autoclave	
17	Centrifuge	

Department of Soil Science

Name of Instrument		Model/Manufacturer
Laboratory 1: Soil & Water Conservation Lab		
1	Augur	
2	Centrifuge	
3	Core Sampler	
4	Dispersion cup	
5	Distillery	
6	Double Ring Infiltrometer	
7	EC Meter	
8	Electrothermal	
9	Electronic Balance	
10	Flame Photometer	

11	Freezer	
12	Magnetic Stirrer	
13	Muffle Furnace	
14	pH Meter	
15	Plant Grinder	
16	PR-6 soil Moisture Probe	
17	Pressure Membrane Apparatus	
18	Spectrophotometer	
19	Stirring Cup	
20	Suction Pump	
21	Tensiometer	
22	Thermostat Cabinet	
23	Tube Heater	
24	Vortex mixture	
25	Wet Sieving Apparatus	

Lab 2: Soil Microbiology Lab

1	Autoclave	
2	Cool incubator	
3	Magnetic stirrer	
4	Microwave oven	
5	Centrifuge machine	
6	Desiccators	
7	Light Microscope	
8	Water bath	
9	Fume Hood	
10	Laminar flow cabinet	
11	Weighing balance	
12	Colony counter	
13	Gel electrophoresis	
14	Vortex mixer	
15	Micro-centrifuge	
16	PCR Thermo-cycler Machine	

Lab 3: Soil Chemistry Lab

1	Centrifuge	
2	Water bath	
3	Magnetic Stirrer	
4	Orbital Shaker	
5	Spectrophotometer	
6	Fume hood	
7	Hot air Oven	
8	Muffle Furnace	
9	Freezer	
10	Vortex mixture	

11	Analytical Balance	
12	Top loading balance	
13	Electromantle	
14	Desiccator	
15	Refrigerator	
Lab 4: Biomass Energy Lab		
1	Digestion and distillation units	
2	EC meter	
3	pH meter	
4	Seed counter	
5	Autoclave	
6	Incubator	
7	Multiple ion analyzer	
8	Water distillation unit	

**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI
INSTITUTE OF ANIMAL SCIENCES**

LIST OF FUNCTIONAL INSTRUMENTS

Sr. No.	Name of Instrument	Model/Manufacturer
Livestock Management Lab (Lab-1)		
1.	Gerber Machine with roter for 8 butyrometer, 1350 rpm,	Model NOVA safety Funke, Gerber, Germany
2.	Hoof Trimmer kit local	local
3.	Grooming Tools (brush, combs, hair trimmer)	local
4.	Castrator (Burdizo)	local
5.	Bit and Bridle (Harness) leather made	local
6.	Milk churner & Separate Local	local
7.	Steel Utensils for ghee curd Khoa	
8.	Water Distillation,	Model 760700 Pobel, Spain, Europe
9.	pH meter,	Model 3100, Ohaius, USA
10.	Electrical Balance	OHAUS, USA Sr. (B 347024121)
11.	Incubator	Germany Memmert
12.	Projection Microscope	Model MX-4000 Meiji Japan with 29” TV Samsung
13.	Water bath	WNB-14 No. L411:0556
Animal Nutriton and Feed Technology		
1.	Regodigit oven	Type 219. S.No. PBI-59918.
2.	Oven Universal	Memmert Digital PiD, Model, UNB-400, Memmert, Germany. S.No C408.0578
3.	Water bath	10L, Digital, WNB10, Memmert germanry
4.	Eppendorf Research Pipette	10-100ul (3111-000-149)
5.	Socorex Res. pipette	01-10 andd 10-100 ul
6.	Water Distillation Apparatus,	Au slan output, 4L/hr. IM-100 Imeco Germany
7.	Centrifuged Clinical	Labofuge-200 Sr. No. 40846802
8.	High Speed Refrigerated Centrifuge	20000rpm, with 2 rotors, Model Z36Hk Germany

9.	pH meter	Model PH 200L ISTEK, and PH-25, Crison
10.	Muffle Furnace	D-550, NEYTECH, USA
11.	Vortex mixture	VM-10, WITEG Germany, VM 10090228042
12.	Shaking water bath	WSB-30, WITEG GermanyWSB30090309005
13.	Magnetic Stirrer	HI-190M,
14.	Spectrophotometer	PG, T-60m UV Visible with
15.	Flame photometer	Single Channel, 360, Shrewood, England
16.	MicroKjeldhals with distillation set	20 places, UDK-129, Velp Italy,
17.	Soxhlet apparatus	6 samples, with heating unit, 250 flask, Behr Germany
18.	Electric Grinder	Electric Grinder Labomil, Germany, Sr. 15200150
19.	Sieve Shaker & Sieves	Electro Maganatic Sieve shaker UNIEN 932-5,
20.	Oven Vaccum	TMOV. OV-70 with pump
21.	Fume Hood	Fume Hood, 3ft cabinet,
Molecular & Functional Genomics Lab		
1.	Water Bath	-
2.	Vortex Mixer	-
3.	Centrifuge	Mod-D2012
4.	Micro Centrifuge	-
5.	Proplex 3x32 Well PCR System	-
6.	Agilent Statergene MX	3005p5
7.	Ice Flake Maker	Model -140
8.	Laminar Cabinet	Streamline
9.	Ultra-Low Freezer (Panasonic)	MDF-U332
10.	Refrigerated Centrifuge	18k/min, Z-326k
11.	High Speed Centrifuge	14k/min, Z-306
12.	Gel Documentation and Analysis System	Syngene
13.	Stirrer	PC-131, S#1190961
14.	Horizontal Gel Electrophoresis	Cat# MS Max125M/5 Cleaver UK
15.	Microwave Oven	Dawlance & Media
16.	Refrigerator	14 Cuft Dawlance 9188
17.	Orbital Shaker Incubator	-
18.	Milk Analyzers	Ultrasonic
19.	Gel Electrophoresis Equipment	S#MS140808 144
20.	Nanodrop	Mod-Q5000
21.	Incubator, Digital INB Series, 53L Memmert	Mod-INB-400 S# E411.0550

22.	Electronic Balance Digital Top Loading	Pioneer #B347024160
23.	pH Meter Digital-2 To 16 pH Range CRISON	S# Ex 93138
24.	Binocular Light Microscope	S# 818719,818762
25.	Oven, Universal	Memmert, Digital

**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI
INSTITUTE OF GEO-INFORMATION AND EARTH OBSERVATION**

LIST OF FUNCTIONAL INSTRUMENTS

Sr. #	Name of Instrument	Model / Manufacturer
Geo-Informatics Lab.		
1.	PCs (Quantity: 20)	Dell
2.	Trimble GPS (Quantity: 03)	JUNO/T41/5-BWC
3.	Garmin GPS (Quantity: 03)	3BP379272
4.	Nava GPS (Quantity: 04)	A101652200263F
5.	Thermal Imaging Camera HT-02 (Quantity: 01)	201810013561
6.	Spectrometer (Quantity: 01)	-
7.	Lasai Line Laser	100596586
8.	FOIF Total Stations (Quantity: 02)	RTS102R5
9.	GPS Static A3 Receiver (Quantity: 02)	-
10.	Digital Drawing Board (Quantity: 01)	-
11.	LED TV (Quantity: 01)	Samsung
12.	Acer Multimedia	Acer
13.	Lasai High and Long Distance Intelligent	LS203-1007497928
14.	AC	Dawlance
Post-Graduate Research Lab.		
1.	PCs (Quantity: 06)	Hp
2.	Hp Plotter	-
3.	Acer Projector	Acer

Central Research Laboratory

List of Functional Instruments

Sr. No.	Name of Instrument	Manufacturer / Model
1.	HPLC - High Performance Liquid Chromatography	Shimadzu
2.	Freeze Dryer	Telstar
3.	Oven (Digital)	Memmert
4.	Oven (Analog)	Memmert
5.	Flame Photometer	Jenway
6.	Microtome	Leice
7.	Block Digester	UDK-42
8.	Fume Hood	Technico Scientific Supply, Lahore.
9.	Ultrasonic Bath	Model: S-DS-3, Stalwart Instruments
10.	Magnetic Stirrer	Model: B-292
11.	Multi-meter (EC, pH, TDS)	Model: YK-2005WA, Taiwan
12.	Water Distillation Plant (Glass)	Normax
13.	pH Meter	Model: Hanna-210
14.	Electrical Balance (0.1mg to 120g)	Manufacturer : Chyo- YMC Co Ltd. Japan.
15.	Refrigerator (Quantity: 02)	Dawlance
16.	Heating Element	Model/Manufacturer: Electro thermal 98-1-B, China