

Department of Mechanical, Mechatronics & Manufacturing Engineering

Program: B.Sc. Mechatronics & Control Engineering

Faisalabad Campus

Sr. No.	Name of Laboratory	Name of equipment/workstation
1	Computer Lab I & II	1. (25+25) PCs
2	Thermal Sciences Lab	- Four stroke Diesel Engine Model. - Two Stroke Petrol Engine Model. - Laboratory Air Conditioning Trainer. - Commercial Air Conditioning Trainer. - Mechanical Heat Pump. - Cooling Tower
3	Circuits & Devices Lab	- Operational amplifier fundamentals (x5) - Transistor power amplifier (x5) - Transistor amplifier circuit - Logic Gates - Combinational & Sequential logic IC's - Bread Boards - Power Supplies - Oscilloscopes - Frequency generators - DLD Trainers
4	Fluid Mechanics Lab	- Hydraulic Bench - Series / Parallel pump Rig - Pipe friction Apparatus - Bernoulli's theorem Apparatus - Reynolds's No. and Transitional Flow Apparatus - Variable Displacement Vane Pump Study Unit - Cross Flow Heat Exchanger - Francis Turbine - Cavitation Demonstration Unit - Gear Pump Demonstrator - Plunger Pump - Ventilation System - Venture Meter Apparatus - Pelton Turbine - Centrifugal Pump - Turbine Service Unit - Gear Pump
5	Instrumentation and Measurement Lab	- LVDT Trainers - Transducer & Instrumentation Trainer - Computer Controlled Regulation & Control Equipment - DC Power Supply (x10) - Digital Multimeters (x8) - Oscilloscopes (x7) - Weight Transducer - Data Logger

		9. Function Generators 10. Potentiometer Position Transducer 11. Development Module 12. Temperature Control & Transducer 13. 3-in-1 Virtual Instrument
6	Automation Lab	1. Computer Integrated Manufacturing Cell 2. PLC Trainer with emulators (x3) 3. PLC Units (x7)
7	Engineering Mechanics Lab	1. Belt Friction Apparatus. 2. Quick Return Mechanism (x2) 3. Gyroscope Apparatus 4. Friction on an Inclined Plane (x2) 5. Fly Wheel Apparatus 6. Radius of gyration of rolling disc on inclined plane 7. Advance Testing Beam Apparatus 8. Creep Test Demonstration 9. Screw Jack Apparatus 10. Bearing Friction Apparatus 11. Deflection of beam Apparatus 12. Centrifugal Force Apparatus 13. 4-cylinder Front Wheel Drive Petrol Engine Demonstration Unit 14. 4-cylinder Rear Wheel Drive Diesel Engine Demonstration Unit 15. Motor Cultivator Demonstration Unit
8	Mechanisms Lab	1. Crank Slider Mechanism Demonstration Board 2. Cam & Follower Mechanism 3. Scotch Yoke Mechanism Demonstration Board 4. Single Action Toggle Mechanism Demonstration Board 5. Double Action Toggle Mechanism Demonstration Board 6. Static & Dynamic Balancing Apparatus 7. Bar Linkage Kit 8. Whitworth Quick Return Mechanism Demonstration Board 9. Universal Mechanism Kit 10. Governors Apparatus 11. Gear Train
9	Mechanics of Materials Lab	1. Whirling of Shafts 2. Extension of Wire 3. Rubber Block Apparatus 4. Advance Beam Testing Apparatus (HSM-1C) 5. Torsional Testing Machine (HSM43) 6. Unsymmetrical Cantilever (HSM30) 7. Geared System Apparatus(HTM69-00271) include Digital Display interface 8. Screw Jack (HTM4) 9. Thick Cylinder Apparatus 10. Thin Cylinder Apparatus 11. Experimental Strain Gauge (HSM18) 12. Creep Test Machine Demonstration
10	Renewable Energy Lab	1. Miniature Steam Power Plant

		2. Solar Cell Test Unit 3. Wind Power Electric Generator 4. Photovoltaic Panels Study Unit 5. Solar Energy Trainer with Hot water Solar & Electrical Energy Panels 6. Solar Energy Trainer with Hot water Solar Panels 7. Flat Plat Solar Energy Collector 8. Focusing Solar Energy Collector 9. Wind Energy and Photovoltaic Panel Wind Energy and Photovoltaic Panel
11	Manufacturing Processes	1. Lathe Machine 2. Universal Milling Machine 3. Drill Press 4. Powered Hacksaw 5. Pantograph
12	Engineering Drawing Hall	1. Workbenches 2. Chairs
13	Workshop	1. Woodwork Shop 2. Fitting Shop 3. Machine Shop 4. Bench wise (x12) 5. First Aid Box 6. Personal Protection Equipment 7. Lathe Machines (x4) 8. Metal Grinder Machine
14	Hydraulics and Pneumatics	1. Pneumatic Panel (TII) 2. Hydraulic Panel (TII) 3. Pneumatic Panel (DOIANG) 4. Hydraulic Panel (DOIANG) 5. Compressors (2) 6. Pumps (2)
15	Control Systems Lab	1. Temperature Control and Transducer Trainer 2. Light Transducer and Control Trainer 3. DC Motor Control Trainer 4. Quanser DC Motor Control Trainer 5. Mechatronics Drives Trainer 6. Ball & Beam Balance Trainer 7. Inverted Pendulum 8. DC Power Supplies 9. Oscilloscopes 10. Function Generators 11. PCs
16	Robotic Lab	1. Robotic Manipulators (MyCobot-280-Pi) 2. Adaptive Grippers 3. Power Supplies 4. Oscilloscope 5. Function Generator 6. PCs