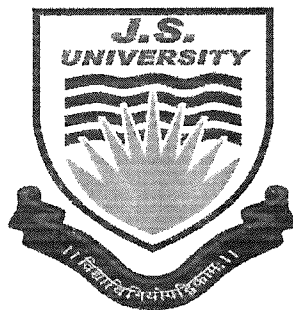


J.S. University, Shikohabad

Established by UP Govt. Act No. 07 of 2015

Recognized by U.G.C. under section 2 (f) of Act-1956




Value Added Course

VAC -148

An introduction of Instruments in Physics

**Faculty of Physics
(2021-2022)**

	J.S. University, Shikohabad Faculty of Physics	Value Added Course
		AY: 2021-22

An introduction of Instruments in physics

Learning Outcome:


This Course will provide knowledge about the Instruments and their handling in lab in physics.

Duration: 30 Hours

Course Objectives:-

After completion of the course the student shall be able to:-

- 1) Learn accuracy and precision about equipment of physics.
- 2) Understand the physics of pressure, temperature, mechanical and electrical aspects of instruments.
- 3) Calculate and analyze error about multimeter, magnetic and optical instruments.
- 4) Demonstrate their knowledge of the basic scientific instruments and fundamental concepts of them.
- 5) Demonstrate the knowledge and ability to develop, construct, and functionally check a process control loop.

	J.S. University, Shikohabad Faculty of Physics	Value Added Course
		AY: 2021-22

Syllabus Outline-

1. Module-1 Basic Instruments

Resistor, rheostat, voltmeter, ammeter, galvanometer, potentiometer battery, eliminator, daniel cell, leclanche cell, meter bridge with pencil jockey, ohm's law apparatus

2. Module-2

Magnetic equipment, optical equipment, gravity related equipment, waves and sound related equipment, heat and thermodynamics related equipment kinematics_related equipment.

3. Module-3


Instruments accuracy, precision, sensitivity. A.C. Bridges: A.C bridges for measurement of inductance, capacitance, Multimeter, Principles of measurement of voltage and current, Electronic Voltmeter, Specifications of an electronic Voltmeter and Multimeter. Cathode Ray Oscilloscope: Block diagram of basic CRO. Construction of CRT, Electron gun, electrostatic focusing. Use of CRO, For the measurement Oscilloscope: Block diagram and principle of work

4. Module-4

Signal Generators and Analysis Instruments: -Block diagram, explanation and specifications of low frequency signal generators, function generator.

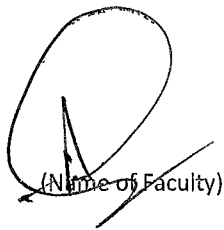
5. Module-5

Impedance Bridges, Block diagram of bridge. Working principles of basic RLC Bridge, Specifications of RLC Bridge. Digital Instruments, Principle and working of digital meters.

	J.S. University, Shikohabad Faculty of Physics	Value Added Course
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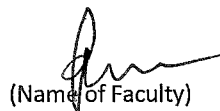
References:-

1. Multhauf, Robert P. (1961), The Introduction of Self-Registering Meteorological Instruments, Washington, D.C.: Smithsonian Institution, pp. 95–116 United States National Museum, Bulletin 228.
2. Anderson, Norman A. (1998). Instrumentation for Process Measurement and Control (3 ed.). CRC Press. pp. 254–255. ISBN 978-0-8493-9871-1.
3. Anderson, Norman A. (1998). Instrumentation for Process Measurement and Control (3 ed.). CRC Press. pp. 8–10. ISBN 978-0-8493-9871-1.


 (Name of Faculty)

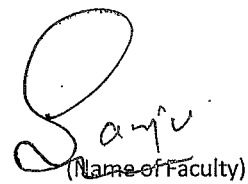
Course Coordinator

Ankit Paul


 (Name of Faculty)

Dean Academics

Dr. Akhilesh


 (Name of Faculty)

Director/Principle/Dean of
Faculty/Department

Dr. Sanjay Kumar