



Laboratory Brief Overview

University/Institute: NED University of Engineering and Technology

Department: Metallurgical Engineering

Lab Name: Wet Chemistry Lab

Lab In-Charge: Dr. Aqeel Ahmed Shah

Email: aqeelshah@cloud.neduet.edu.pk

1. Lab Overview

The Thin Film Laboratory is dedicated to advancing research and innovation in the synthesis and development of functional nanostructures for energy and environmental applications via simple wet chemistry synthesis techniques. Our vision to become a leading hub of excellence providing solution for country's energy and environmental issues. Our mission is to provide state-of-the-art facilities and a collaborative environment while supporting high-quality research, training, and technology transfer in the field of nanomaterials. The laboratory is well-equipped with modern instrumentation, including a UV-Vis spectrophotometer for optical characterisation, an oven for hydrothermal analysis, a centrifuge system, table-top pH meter, a distilled water plant, an autoclave, a precision weight balance, a hot plate magnetic stirrer and a fume hood.

2. Equipment List

Equipment Name	Key Specifications	Research / Teaching Applications
UV-Vis spectrophotometer	Range	Material characterization
Oven	Range upto 200°C	Heating materials, annealing
Precision weight Balance	Range-upto 210g	To weight the materials, chemicals
Centrifuge	Range upto 4000 rpm	
Autoclave		Hydrothermal synthesis of nanostructures
Tabletop pH meter		pH measurement of different solutions
UV box	Uv lights system	Photocatalytic degradation of environmental pollutants

3. Research Applications / Areas

- Advanced Materials characterization
- Advanced Nanomaterials Synthesis
- Renewable energy material testing
- Waste Water Treatment
- Antibacterial nanomaterials production

4. Ongoing or Notable Projects

Project 1. Title: Development of Antimicrobial thin film for Packaging Applications, by Sindh HEC SRSP (2024-2026)

Project 2. Synthesis of ZnO and TiO₂ Nanostructures for Environmental and Energy Applications, NED ISP