

DIPLOMA IN MECHANICAL ENGINEERING LABS	
N1DL102C	WORKSHOP PRACTICE
N1DB402B	HYDRAULICS
N1DB403B	STRENGTH OF MATERIAL
N1DL202B	ELEMENTS OF MECHANICAL ENGINEERING
N1DL302B	THERMAL ENGINEERING
N1DL303C	MANUFACTURING PROCESS
N1DL304L	MACHINE DRAWING
N1DL305B	APPLIED MECHANICS
N1DL401B	INSPECTION & QUALITY CONTROL
N1DL402B	HYDRAULICS AND HYDRAULIC MACHINES
N1DL403B	MECHANICS OF SOLID
N1DL405C	CONCEPT OF HEAT TRANSFER
N1DL406L	AUTO CAD
N1DL502B	REFRIGERATION & AIR CONDITIONING
N1DL503B	POWER PLANT ENGINEERING
N1DL504C	THEORY OF MACHINE

Mechanical Engineering Laboratories

N1DL102C – Workshop Practice Lab

This lab introduces students to fundamental workshop practices. It provides hands-on training in carpentry, fitting, welding, sheet metal work, and basic machining operations. Students develop practical skills in the safe handling of tools, equipment, and machines, enabling them to translate theoretical knowledge into real-world applications.





N1DB402B – Hydraulics Lab

The Hydraulics Lab focuses on understanding the behavior of fluids under static and dynamic conditions. Experiments include verification of Bernoulli's theorem, calibration of flow measuring devices, and performance testing of hydraulic turbines and pumps. Students gain practical insights into fluid flow measurement, pressure losses, and hydraulic energy conversion.



N1DB403B – Strength of Material Lab

This lab trains students to evaluate material properties under various loading conditions. Experiments cover tensile, compressive, impact, bending, and torsion tests. Using universal testing machines and hardness testers, students analyze stress-strain behavior, material deformation, and failure mechanisms, which are crucial for safe and efficient design.



N1DL202B – Elements of Mechanical Engineering Lab

This lab provides a foundation in basic mechanical engineering concepts. Students perform experiments related to internal combustion engines, boilers, steam generation, and simple mechanisms. The lab bridges theoretical principles with practical demonstrations, helping learners understand the working of fundamental mechanical systems.

N1DL302B – Thermal Engineering Lab

In this lab, students explore the principles of thermodynamics and heat transfer. Practical sessions include performance testing of IC engines, compressors, and boilers, along with experiments on calorimetry, heat exchangers, and refrigeration cycles. The lab enhances understanding of energy conversion processes and thermal efficiency.



N1DL303C – Manufacturing Process Lab

The Manufacturing Process Lab introduces students to production methods such as casting, forming, machining, and joining. Students practice turning, milling, drilling, grinding, and welding operations. Emphasis is placed on safety, precision, and process optimization to prepare students for modern manufacturing challenges.

N1DL304L – Machine Drawing Lab

This lab trains students in technical drawing and drafting skills essential for design communication. Using both manual drawing and CAD software, students prepare orthographic projections, sectional views, assembly drawings, and machine part details. The lab develops visualization, accuracy, and design documentation skills.

N1DL305B – Applied Mechanics Lab

Applied Mechanics Lab deals with verifying the laws of mechanics through practical experiments. Students perform tests on force equilibrium, friction, inclined planes, screw jacks, and polygon of forces. The lab strengthens conceptual understanding of statics and dynamics by linking theory with experiments.

N1DL401B – Inspection & Quality Control Lab

This lab focuses on precision measurement and quality assurance in manufacturing. Students are trained in the use of vernier calipers, micrometers, gauges, and coordinate measuring machines (CMM). Experiments include surface roughness testing, tolerance analysis, and calibration methods, ensuring knowledge of modern quality standards.

N1DL402B – Hydraulics and Hydraulic Machines Lab

This advanced hydraulics lab covers testing and analysis of hydraulic turbines (Pelton wheel, Kaplan, Francis) and pumps (centrifugal, reciprocating). Students study efficiency, performance curves, and governing of machines. The lab builds expertise in fluid power systems used in power plants and industries.

N1DL403B – Mechanics of Solid Lab

This lab deepens the study of solid mechanics. Experiments involve deflection of beams, torsional rigidity, spring testing, and stress analysis in thick and thin cylinders. Students learn to determine elastic constants and material behavior under complex loading conditions.

N1DL405C – Concept of Heat Transfer Lab

This lab provides hands-on experience in conduction, convection, and radiation. Experiments include thermal conductivity measurement, heat exchanger performance, Stefan-Boltzmann law verification, and natural/forced convection studies. The lab enhances understanding of heat transfer in engineering applications.

N1DL406L – AutoCAD Lab

The AutoCAD Lab trains students in computer-aided drafting and design. Students learn 2D drafting, 3D modeling, and assembly drawing using AutoCAD. This lab equips students with modern design and drafting skills essential for mechanical engineers in industries.

N1DL502B – Refrigeration & Air Conditioning Lab

This lab introduces students to refrigeration and HVAC systems. Experiments include testing of refrigeration test rigs, air conditioning systems, and measurement of COP, humidity, and psychrometric processes. The lab emphasizes energy efficiency and environmental considerations in cooling systems.



N1DL503B – Power Plant Engineering Lab

In this lab, students gain exposure to thermal power plant models, steam turbines, condensers, cooling towers, and boilers. Experiments focus on understanding power generation cycles, efficiency analysis, and component performance. The lab bridges theoretical power cycle studies with practical insights.



N1DL504C – Theory of Machine Lab

The lab focuses on kinematics and dynamics of machines. Experiments include gear trains, cam-follower mechanisms, governor performance, gyroscopic effect, and balancing of rotating masses. Students analyze motion, force transmission, and vibration in mechanical systems.

