

INDUSTRIAL ELECTRONICS N1:

TEST 1

Module 1: Electric current principles
Module 2: Direct current and resistance
Module 4: Cells and batteries

TEST 2

Module 2: Direct current and resistance
Module 3: Measuring instruments
Module 5: Alternating current principles
Module 6: Principles of magnetism
Module 7: Inductors and transformers
Module 8: Principles of capacitors
Module 9: Semiconductor principles

INDUSTRIAL ELECTRONICS N3:

TEST 1

Module 1: Atomic theory
Module 2: Direct current theory
Module 3: Alternating current theory

TEST 2

Module 2: Direct current theory
Module 4: Semiconductor diodes
Module 5: The transistor
Module 6: Measuring instruments
Module 7: Transducers
Module 8: Operational amplifiers
Module 9: Electronic power control

INDUSTRIAL ELECTRONICS N6:

TEST 1

Module 1: Transients
Module 2: Transducers
Module 3: Ultrasonics

TEST 2

Module 4: X-rays and radio activity
Module 5: Automatic inspection, testing and NDT
Module 6: Electronic safety devices
Module 7: Electronic power control
Module 8: Thyristor devices and scr speed control
Module 9: Programmable logic controllers

MECHANOTECHNICS N4

TEST 1

1. Organization and layout of a Workshop
2. Belt drives
3. Belt conveyors
4. Metal cutting machines

TEST 2

1. Metal protection
2. Precision measuring of machine parts
3. Bearings
4. Gear drives
5. Hydraulics 1
6. Hydraulics 2

ENGINEERING SCIENCE N4

TEST 1

- Mod 1 - Kinematics
- Mod 2 – Angular motion
- Mod 3 – Dynamics

TEST 2

- Mod 1 - Kinematics
- Mod 2 – Angular motion
- Mod 3 – Dynamics
- Mod 4 - Statics
- Mod 5 – Hydraulics
- Mod 6 – Stress strain and Young's modulus

POWER MACHINES N6

TEST 1

- Mod 1 – Revision gas laws N5
- Mod 2 – Internal combustion engines
- Mod 3 – Cycles

TEST 2

- Mod 1 – Revision gas laws N5
- Mod 2 – Internal combustion engines
- Mod 3 – Cycles
- Mod 4 – Compressors
- Mod 5 – Nozzles
- Mod 6 – Steam plants

MATHEMATICS N1

TEST 1

Mod 1 – Exponents and Logarithms

Mod 2 – Four main algebraic operations

Mod 4 – Equations

TEST 2

Mod 1 – Exponents and Logarithms

Mod 2 – Four main algebraic operations

Mod 3 – Factorization and Fractions

Mod 4 – Equations

Mod 5 – Algebraic Fractions ‘

Mod 6 – Triangles

Mod 7 – Trigonometry

MATHEMATICS N2

TEST 1

Mod 1 – Exponents and Logarithms

Mod 3 - Equations

TEST 2

Mod 1 – Exponents and Logarithms

Mod 2 – Factorization and Fractions

Mod 3 – Equations

Mod 4 – Algebraic Graphs

Mod 6 – Trigonometry

MATHEMATICS N3

TEST 1

Mod 1 – Factorization and Fractions

Mod 2 – Exponents, Surds and Logarithms

TEST 2

Mod 3 – Equations

Mod 4 – Coordinate Geometry

Mod 5 – Algebraic Graphs

Mod 6 – Differential Calculus

Mod 7 – Trigonometry

ELECTROTECHNOLOGY N3:

TEST 1

Chapter 1: DC machines

Chapter 2: Generator and motor principles

Chapter 3: Direct current generators

Chapter 4: Direct current motor

INDUSTRIAL ELECTRONICS N2

TEST 1

Chapter 1: DC theory

Chapter 2: AC theory

Chapter 3: Measuring instruments

Modules included in the assessments by J.Moyo

Electrotechnics N4

Test one : Current flow in an electrical circuit

Magnetism and electricity

Electromagnetism and induction

Capacitors

Test two : DC current machines

AC current theory

AC machines

Transmission

Measuring instruments

Electrotechnics N5

Test one : DC machines

AC circuit theory

Test two: Transformers

Measuring instruments

AC machines

AC generation and supply

Power machines N5

Test one: Gases

Entropy of gases

Compressors

Combustion of fuel

Test two : Steam power plants

Steam generation

Boiler calculations

Condensers

Steam turbines

Governors

Control systems N6

- Test one:**
- Laplace transforms
 - Initial and final value theorem
 - 2nd order systems
 - Block diagram algebra
- Test two:**
- Bode diagrams
 - Nichol's charts
 - Root locus
 - Transducers
 - Electronic circuits
 - Electrical and machines and systems

Control systems N6

- Test one:**
- Laplace transforms
 - Initial and final value theorem
 - 2nd order systems
 - Block diagram algebra
- Test two:**
- Bode diagrams
 - Nichol's charts
 - Root locus
 - Transducers
 - Electronic circuits
 - Electrical and machines and systems

SUBJECTS	TEST 1	TEST 2
ELECTRICAL TRADE THEORY N1	1. SAFETY & BASIC HAND TOOLS 2. ELECTRICAL CIRCUITS 3. MAGNETISM & TRANSFORMERS	1. ALTERNATING CURRENT 2. BATTERIES & DC SOURCES 3. MEASURING INSTRUMENTS 4. CONDUCTORS CABLES & WIRE WAYS 5. WIRING PREMISES 6. TESTING
MECHANOTECHNICS N5	1. EPICYCLIC GEARS AND GEAR TRAINS 2. REDUCTION GEARBOXES 3. BELT DRIVES	1. BUCKET ELEVATORS AND BUCKET CONVEYORS 2. ROPE HAULAGES 3. ELEVATORS 4. RAIL AND ROAD TRACTION CALCULATIONS 5. FLYWHEELS
MECHANOTECHNICS N6	1. FRICTION CLUTCHES 2. BRAKES 3. TRANSMISSION SHAFTS	1. FLYWHEELS 2. REDUCTION GEARBOXES 3. DYNAMICS 4. BALANCING
ELECTROTECHNICS N6	1. DC MACHINES 2. AC CIRCUITS	1. TRANSFORMERS 2. AC MACHINES – SYNCHRONOUS 3. AC MACHINES – INDUCTION MOTORS 4. GENERATION & AC SUPPLY 5. MEASURING INSTRUMENTS

Compulsory Test Scope:

Machanotecnology N3.

Compulsory Test 1

10 October 2020

Module 1 Power Transmission

Module 2 Brakes

Module 3 Brearings

Compulsory Test 2

31 October 2020

Module 4 Water Pumps, Cooling and Lubrication

Module 5 Hydraulics and Pneumatics

Module 6 Internal Combbustion Engines

Module 7 Cranes and Lifting Machines

Module 8 Material and Material Processes

Module 9 Industrial Oganisation and Planning

Module 10 Entreneurship

Compulsory Test Scope:
Fitting and Machining Theory N2

Compulsory Test 1

10 October 2020

Module 1 Occupational Health & Safety (Act No. 85 of 1993)

Module 2 Couplings

Module 3 Limits and Fits

Module 4 Bearings

Compulsory Test 2

31 October 2020

Module 5 Marking Off

Module 6 Screw Thread

Module 10 Grinding Machines

Module 11 Shaping Machines

Module 13 Machine Cutting Tools

Module 14 The Centre Lathe

Compulsory Test Scope:
Fitting and Machining Theory N1

Compulsory Test 1

10 October 2020

- Module 1** Occupational Safety
- Module 2** Metals and Plastics
- Module 3** Hand Tools
- Module 4** Measuring Instruments

Compulsory Test 2

31 October 2020

- Module 5** Marking Off
- Module 6** Screw Thread
- Module 10** Grinding Machines
- Module 11** Shaping Machines
- Module 13** Machine Cutting Tools
- Module 14** The Centre Lathe

Compulsory Test Scope:

Engineering Drawing N3

Compulsory Test 1

07 October 2020

Text Book: Engineering Drawing N4 - Authors: - CL Moolman and CG Brink.

- Module 1** Fundamentals of Engineering Drawing
- Module 2** Geometrical Constructions
- Module 3** Orthographic Projection
- Module 4** Isometric Projections and Perspective Drawing

Text Book: Engineering Drawing N3-Author : - Kristy Cochius

- Module 1** Drawing Equipment and Drawing Fundamental
- Module 2** Line Types and Printing
- Module 3** Freehand Drawing
- Module 4** Geometrical Construction
- Module 5** Dimesion Conventions
- Module 6** Orthographic Projections.
- Module 7** Isometric Projection
- Module 8** Perspective Drawings

28 October 2020

Module 11 Sectional Drawings of Assemblies - The following Modules may be included to be presented on the drawings: Module 3; Module 5; Module Module 6; Module 7 and Module 10.

Module 12 Assembly Drawings. - The following Modules may be included to be presented on the drawings: Module 3; Module 5; Module Module 6; Module 7 and Module 10.

Module 11 Sectional Drawings.

Module 12 Assembly Drawings.

Compulsory Test Scope:

Engineering Drawing N2

Compulsory Test 1

07 October 2020

Module 1 Fundamentals of Engineering Drawing

Module 2 Draw Terminology, Abbreviations and Computer Aided Draughting

Module 3 Fastening and Welding Devices

Module 4 Screw Threads

Compulsory Test 2

28 October 2020

Module 6 First-Angle Orthographic Projection

Module 7 Isometric Drawings

Module 8 Curves of Penetration

Module 9 Third-Angle Orthographic Projection

Note:

A question on **Module 6** (First-Angle Orthographic Projection) or **Module 9** (Third-Angle Orthographic Projection) will be asked during the test.

Compulsory Test Scope:

Engineering Drawing N1

Compulsory Test 1

07 October 2020

Module 1 Fundamentals of Engineering Drawing

Module 2 Computer Aided Draughting, Drawing Terminology and Abbreviations.

Module 3 Freehand Drawings

Module 4 Geometrical Constructions

Compulsory Test 2

28 October 2020

Module 6 First-Angle Orthographic Projection

Module 7 Axonometric Drawings

Module 8 Geometrical Solids: The projection of prisms and Pyramids.

Module 9 Sectional Drawings.