

COURSE OUTLINE FOR FIRST YEAR ARTISANS

UNIT 1 MATHEMATICS I

- Basic Arithmetic
 - Numbers
 - Rational Arithmetic
 - Manipulative skills
 - Mensuration
- Algebra I
 - Simple Equations
 - Algebraic Expressions
 - Algebraic Formulae
 - Simple Simultaneous Equations
- Geometrical Calculations I
 - Area of Figures
 - Pythagoras' Theorem

UNIT 2 APPLIED SCIENCE I

- Units and Measurements
 - Basic Concept
 - Units
 - measurements
- Force, Work, Energy and power
 - Kinetic
 - Potential
 - Applications of power in machines
- Friction
 - Definition
 - Causes of friction
 - Advantages and disadvantages of friction
 - Friction experiments
- Light
 - Reflection
 - Refraction
- Sound
 - Speed
 - Frequency
 - Wave length
- General Chemistry



- Experimental techniques
 - Classification of matter
 - Atomic structure
 - Chemical bonding
- Elements and Compound
 - Oxygen
 - Hydrogen
 - Carbon and Carbon Cycle
 - Acids
 - Bases
 - Salts
- Metals and Alloys
 - Copper
 - Iron
 - Steel
 - Brass
 - Extraction of metals

UNIT 3 GENERAL STUDIES I

- Communication Skills
 - Introduction
 - Written communication
 - Verbal communication
 - Factors influencing choice of method
- Family Life
 - The family
 - Privileges
 - Impact of Modernization
- Population
 - Factors that lead to rapid increase in population
 - Effects of over population
 - Population control measure
- Pollution and other hazards
 - Types of pollution and their effects
 - Causes of pollution
 - Control measures
 - Hazards and their effects
 - Causes
- National Philosophy and Development
 - National building



- National philosophies
 - Youth and national development
 - Integration of values
 - Organizations that contribute towards National building
- Leisure and Culture
 - Music appreciation
 - Culture, sports and games
 - Dance
 - Drama
 - Leisure activities

UNIT 4 APPLIED GEOMETRY I

- General Communication
 - Introduction
 - Use and care of drawing instruments
 - Line symbols
 - And lettering
 - Measurement and dimensioning
 - Two dimensional drawings
 - Scales
- Plane Geometry I
 - Triangles
 - Quadrilaterals
 - Polygons
 - Circles
- Solid Geometry I
 - Development of surfaces of truncated regular solids
 - True shapes of sections on regular solids
- Pictorial Drawing I
 - Free hand sketching
 - Isometric drawing
 - Oblique drawing
- Orthographic Projection I
 - 1st and 3rd angle orthographic projections
 - Orthographic views of regular solids
 - Orthographic views of irregular solids



UNIT 5 ELECTRICAL INSTALLATION TRADE THEORY I

- Occupational Information
 - Job opportunities
 - Further Training
 - Institutions and their entry qualifications
- Electrical Quantities
 - Concept of electron flow in a conductor
 - Current
 - Voltage
 - Resistance
 - Power and energy
- Electrical Circuits
 - Circuit components
 - Open circuit
 - Closed circuit
 - Short circuit
 - Series circuit
 - Ohm's law
 - Parallel circuit
- Conductors and Insulators
 - Conductors
 - Insulators
 - Factors affecting resistance
- D. C. Sources
 - Sources of D. C.
 - Primary Cells (dry cells)
 - Secondary cells
 - Connection of cells
- Electromagnetism
 - Electromagnets
 - Bells
 - Relays
 - Contactors
 - Indicators
 - Transformers
 - Motors



UNIT 6 ELECTRICAL INSTALLATION TRADE PRACTICE I

- Safety and Work Habits
 - Protective wearing safe working habits
 - Dangers of electricity
 - Electric Shock
 - First Aid to shock
 - Victim care and maintenance of tools
- Cable Joints and Terminations
 - Construction of cables
 - Cable sizes
 - Types of cables
 - PVC insulated cables
 - VRI cables
 - Flexible cables and cords
- Final Lighting Sub-Circuits
 - Simple lighting circuit looping in method
 - Two way switching intermediate switching
- Wiring system
 - All insulated wiring
 - Catenary supported
 - Wiring plastic conduit
- Earthing and Protective Devices
 - Earthing requirements
 - Earthing methods
 - Fuses
 - Circuit breakers (MCB)
- Testing and Inspection
 - Verification of polarity
 - Insulation tests
 - Earthing tests
- Bell Circuits
 - Simple Bell circuits
 - Bell and indicator