



Basic Electrical Skills For Personnel of Other Disciplines

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COURSE CONTENT

Aim

To provide basic electrical skills to personnel of other disciplines.

Pre-requisite

Delegates should have a craft background, however, it is not essential.

Course Duration

The course is in two parts; Part A – 5 days
Part B – 5 days

Optimum Number

The optimum number of delegates for this course is 8.

Training Aids

Use will be made of lecture notes, OHP presentation and practical exercises.

Assessment

Each delegate will be subjected to a series of practical tests to determine achievements of objectives.

COURSE SYLLABUS

PART A

- Revision of Circuit Laws Units
- Volts, amps, ohms, watts, power factor.
- Ohm's Law.
- Circuit analysis and problem solving.
- Electrical Safety
- Effects of electric shock.
- Protection and earthing systems.
- Protection Systems
- Fuses – types, characteristics, capacities, and discrimination.
- Residual current circuit breakers.
- Fault voltage operated circuit breakers.
- Thermal and magnetic trips, MCB's
- Low Voltage Protection
- 110v / 130v system including colour code, plugs, sockets etc.
- Delegate to make up plugs and extension leads to correct standards.
- Testing & Installation
- Correct use of an insulation and continuity tester.
- Correct testing procedures.
- Insulation testing, continuity, etc.
- IEE Regulations
- Cable sizes and rating.
- Basic fault diagnosis.
- Cable Termination Systems
- Steel wired armoured cable and MICC cable.
- Delegates will make off both SWA glands correctly and install lighting and power circuits including 2-way lighting, ring main.

COURSE SYLLABUS

PART B

- Electromagnetic Induction
- Basic principles of magnetism.
- The magnet effect of an electrical current.
- Electromagnetic induction principles.
- Mutual induction and transformer principles.
- The Electric Motor Principle
- Fleming's left and right hand rules.
- Rotary motion.
- Electrical Machines
- The simple alternator
- The DC generator
- Supply Voltages – 3 Phase / 4 Wire System
- AC Motors – 3 Phase and Single Phase
- Construction of squirrel cage.
- Construction of wound rotor.
- Basic principles of operation.
- Control Circuits
- The direct on line, motor circuit.
- Sequence control circuits.
- Automatic control.
- Star / Delta motor control circuit.

On completion of the above theory, the trainee will produce, from electrical drawings (using various components) a range of practical control circuits selected from the following:

- Direct on line circuit.
- Direct on line and remote.
- Sequence control – 3 motors.

Electrical Isolation

- Electrical Isolation procedure in accordance with the Electricity at Work Act 1989.
- Practical application of the above on our multi-motor board's

Dates available on request

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