OakCAD/NCT

ELECTRICAL & ELECTRONIC PRINCIPLES

This training course has been developed by OakCAD/NCT to meet the growing need for technician engineers to update or upgrade their electrical and electronic knowledge and skills.

The course has been endorsed under the ABC Awards/Certa Quality Licence Scheme. This means that OakCAD/NCT has undergone an external quality check to ensure that the organisation and the courses it offers, meets defined quality criteria.

At the end of this course successful learners will receive a Certificate of Achievement from ABC Awards/Certa and a Learner Unit Summary (which lists the components the learner has completed as part of the course).

The course content has been developed in consultation with several of our large pharmaceutical and manufacturing clients over many years and can be provided as a tutor lead delivered course, as a distance learning course or flexibly , combining both methods**.**

This course is in modular form with each module individually assessed and consists of:

1 Course notes
2 Worked examples
3 Trainee self-assessments
4 Module assessments

On completion of all modules, there is an end of course and practical assessment.

Companies who are considering the development of their own Apprenticeship Scheme may wish to include this EAL accredited & certificated qualification into their plans.

If required OakCAD can also help develop an effective company scheme.

STUDY TIME
This course has been set at a level equivalent to Level 3 and it is expected that it will take you 20 - 30 hours of delivered time or approximately 60 hours of self-study time (distance learning).

COURSE FEE
The current level of course fees for distance learning courses is displayed on the NCT web site.

For delivered courses, please contact OakCAD.

REQUIREMENTS
To undertake this course, you should have good basic engineering and mathematical knowledge. OakCAD/NCT is able to advise you as to whether you have the necessary background knowledge and experience to undertake this course.

INDUSTRY
Although written for the pharmaceutical industry it is also appropriate for the Petro- chemical industry, Food Manufacture or any industry using automatic production lines and processes or having a modern maintenance requirement.

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COURSE CONTENT

Module 6 - Transformers

6.1 Transformer Construction

6.2 Principles of Operation

6.3 Module Assignment

Module 7 - Direct & Alternating Current Theory

7.1 Direct Current Theory

7.2 Kirchoff's Laws

7.3 Alternating Current

7.4 Resistance and Reactance in an a.c. circuit

7.5 Phase Angles

7.6 Resonance and Filters

7.7 Module Assignment

Module 8 - Protection Devices

8.1 Protection against Electrical Shock

8.2 Miniature Circuit Breakers

8.3 Overcurrent Protection

8.4 Fuses

8.5 Residual Current Device

8.6 Module Assignment

Module 9 - Electronic Components, Circuits and Basic Control Systems

9.1 Safety Precautions Associated with Electronic Systems

9.2 Electronic Components –

Resistors

Capacitors

Inductors

9.3 Module Assignment

Module 10 - Semiconductor Devices

10.1 Semiconductors
10.2 Diode
10.3 Rectification
10.4 Zener Diode
10.5 Transistors and Thyristors
10.6 Triacs, Diacs and Integrated Circuits
10.7 Module Assignment

Module 11 - Testing and Safety

11.1 Electrostatic Discharge
11.2 Testing The Integrity Of Wiring and Components
11.3 Digital Multimeters
11.4 Installation Resistance Testers
11.5 Wiring Tests
11.6 Component Testing - Diodes, Transistors, Thyristors
11.7 Oscilloscope
11.8 Module Assignment

Module 12 - Input and Output Devices

12.1 Switches
12.2 Displays
12.3 Communications - Wired and Wireless
12.4 Module Assignment

Module 13 - Electrical Connections

13.1 Wiring and Cables
13.2 Connectors
13.3 Module Assignment