



OakCAD/NCT



AN INTRODUCTION TO MECHATRONICS

Course Profile

This is a new course that introduces you to most of the elements that go to make up a mechatronic or automated system, as used in many modern automated production lines in the pharmaceutical, food and chemical industries etc.

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).

This course is in modular form with each module individually assessed and can be provided as a tutor lead delivered course, as a distance learning course or flexibly , combining both methods.

It 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 assessment and practical work.

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 UK based 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 and preferably experience in instrumentation and control. 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.



AN INTRODUCTION TO MECHATRONICS

1. Measuring Systems

- Sensors
- Transducers
- Transmission

2. Mechanical Assemblies

- Shafts
- Bearings
- Bushes

3. Electronics

- Safety Precautions associated with Electronic Systems
- Electronic Components – Resistors, Capacitors, Inductors
- Introduction to Semiconductor Devices

4. Semiconductor Devices

- Diodes
- Rectification
- Transistors & Thyristors

5. Actuators

i) Mechanical

- Gears
- Belts
- Clutches

ii) Pneumatic & Hydraulic

- Introduction to Pneumatics
- Differences in Pneumatic and Hydraulic Systems

iii) Electrical

- Motors - DC motors, Stepper motors etc
- LVDTs
- Encoders – Absolute, relative

6. Programmable Logic Controllers

- Overview
- Programming – Formats and options
- PLC Functionality

7. Mechatronic Systems & Automation

- Examples of Mechatronic Systems

Appendices