Hello, my name is David Hymers and I am here to present an introduction to the unit DC & AC Principles, it is an optional unit on the HNC engineering systems course.

Involved in this unit is two learning outcomes,

1st outcome is on DC circuit basic concepts and theorems, DC is Direct current

2nd outcome involves AC circuits which is alternating current

1st outcome introduces to quantities such as voltage, current and resistance. A you’ll have to sketch series and parallel circuits and they will need simplified. Equations such as ohms law will be introduced, and the use of a scientific calculator will be required. Standard units will be highlighted to make quantities suitable for the equations.

Then in 2nd learning outcome you will be introduced to capacitance and inductance. The application can be made to electrical motors, generators and power distribution. This capacitance and inductance cause reactance and impedance. This leads to calculating different powers such as real, reactive and apparent. Through all this a power factor will be calculated. This will be represented on phase diagrams so a bit of sketching will be involved to represent this, another method of representing this is polar form which is writing the magnitude of the value with the unit and the angle. This can be called a vector. This can also be represented in a coordinate system called complex notation, this will be covered in the Maths unit, also will be required in the Graded Unit, so one unit will help the other with practising this technique.

All of what has been said will be in a study guide for this unit with more detail.

To be assessed a 90 minutes closed book assessment is required for the two learning outcomes, supervised with a no formula sheet given. All possible questions will be covered in the learning material, only a sample with be assessed. The pass rate is 60% and one resit is allowed for the unit.

Thank you for listening.