**FEEG 1001 COMPUTING – LECTURE 1 WEEK 10 NOTES**

Slide 109 –

\_\_str\_\_ - covert numbers into strings, even a list can be represented by a string….this is shown by “ “ and ‘ ‘ …. For example if a is a list then a string of that list is a\_\_str\_\_()

%s %a give the string representation of a

\_\_repr\_\_ - gives a true representation of a python object

Slide 266 – scientific python

Use help(scipy)

Slide 272

Use scipy.optimize.curve(function, x, y) – to help with curves

From scipy import odeint

This function is responsible (function, initial y value, what value of t do I want to know)

Plot by using numpy , and then show the plot,

Ts = np.arange( initial value of t, final value of t , t should increase by)

What is interpolation?

Exam in 13th January in python

Lecture 2

For non linaer equations

Bracketing a root :

1. Assume f(X) is continuous
2. We found 2 values a and b:
3. Such that f(a) x f(b) < 0

This means that either f(a) is negative and f(b) is positive

What we want is f(x) = 0

Using the bisection method:

1. Bracket root between x lower and x upper
2. Constructed a point midway between

X new = x lower + x upper / 2

1. Replace whichever of x lower and x upper is such that f(x lower) or f(x upper) has the same sign as f(x new)
2. Repeat until bored

Using trial and error to find the root

Bisection : how fast does it converge?

If the interval width has wdith abs(b-a) = eps n after n interations

Eps n+1 = eps / 2

In general eps n+1 = constant \* eps n

**False position**

X new = (a \* f(a) – b \* f(b)) / (f(a) + f(b))

This formula takes into consideration of both the points a and b