

# SE Course: Numerical Methods

<http://www.cs.aau.dk/~yang/course/NMbasis/NM2010.htm>  
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## MM5: Secant Iteration Method

### 1 kl.8:15-9:00, Review of MM4 and Some Examples

- What we talked in MM4;
- Examples of Newton's method;
- Matlab implementations.

### 2 kl.9:10-10:40, Exercises for MM4

#### Question One:

Consider the same equation as we used in MM3 Exercise One, i.e.,

$$3x^3 - 5x^2 - 4x + 4 = 0 \quad (1)$$

- Create your m-file to obtain the solution of the above equation located within the interval  $[0, 1]$ , using Newton's method with tolerance  $10^{-6}$ ;
- How many iterations would be needed to obtain this solution? How about no. of iterations required by bisection method and functional methods to obtain this solution with same tolerance?

#### Question Two:

Consider the the same equation as we used in MM3 Exercise Two, i.e.,

$$\exp(x) - 100x^2 = 0 \quad (2)$$

- This equation has exactly 3 solutions, can you obtain all of them using the Newton's method by properly assigning the starting points.
- How would you conclude about the Newton's method comparing with bisection method and function method.

### 3 kl.10:50-11:30, Secant Method

- Reading material: Subsection 2.5 in Textbook.