QE ขอบเขตเนื้อหารายวิชา *2301653* Numerical Analysis I

1. **Numerical methods for systems of linear equations**
   - Direct methods – Gaussian elimination and pivots, LU-type factorizations
   - Iterative methods – Jacobi, Gauss-Seidel and SOR methods

2. **Iterative methods for nonlinear systems**
   - Fixed point methods
   - Newton-Raphson methods

3. **Numerical methods for initial value problem ODEs**
   - One-step methods – Taylor's, Euler, modified Euler, RK methods
   - Multi-step methods – Adams-Bashforth, Adams-Moulton, Milne methods

4. **Numerical methods for *2*-point boundary value problem ODEs**
   - Shooting methods for linear/nonlinear problems
   - Finite difference methods for linear/nonlinear problems

5. **Finite difference methods for linear PDEs**
   - Methods for elliptic PDEs
   - Methods for parabolic PDEs (heat equations)
   - Methods for hyperbolic PDEs (wave equations)