Syllabus

MAE384 Numerical Methods for Engineers - Fall 2012
Tu/Thu 9:00-10:15 AM WGHL101

Instructor: Huei-Ping Huang, ERC 359, Email: hp.huang@asu.edu
Office Hours: Tuesday 10:30-12:00, Wednesday 2:00-3:00, or by appointment

Textbook: *Numerical Methods for Engineers and Scientists: An Introduction with Applications Using Matlab*, 2nd Edition, Gilat & Subramaniam, **Required**

Course website: http://www.public.asu.edu/~hhuang38/MAE384.html

Please review (1) Calculus and ordinary differential equation, (2) Linear algebra, (3) Matlab
Self study: Ch.2, Ch.4 (Sec 4.1-4.6), and Matlab in Appendix of textbook

Course Outline

Part I Basic Numerical Methods (Gilat & Subramaniam)

- Overview (Lecture note and Ch. 1 of G&S)
- Nonlinear equations (Ch. 3)
- System of linear equations (Ch. 4)
- Curve fitting and interpolation (Ch. 5)
- Numerical differentiation (Ch. 6)
- Numerical integration (Ch. 7)
- Ordinary differential equation - Initial value problem (Ch. 8)
  - Boundary value problem (Ch. 9)

Part II Introduction to Partial Differential Equation (PDE) (Lecture note)

- Overview and analytic solution
- Numerical solution

Grade: 50% Homework (6 assignments expected) 20% Midterm (one exam) 30% Final

A general guideline for the minimum requirement (expected course outcome) for a C grade can be found in the First Day Form which will be distributed separately.

Useful links

ASU policy on academic integrity: https://provost.asu.edu/academicintegrity
Campus safety and security: https://provost.asu.edu/University-Safety-Security
Grade and grading policies: https://students.asu.edu/grades
Counseling and consultation: https://students.asu.edu/counseling
SEMTE advising: http://engineering.asu.edu/semte/Advising.html

ASU common software/applications portal: https://apps.asu.edu (login required)
MATLAB searchable online documentation: http://www.mathworks.com/help/techdoc/?s_iid=ML2012_bb_doc
MATLAB online tutorials: http://www.mathworks.com/products/matlab/examples.html