Course: CE 603: Numerical Methods

Instructor: Mandar M. Inamdar

Time: Wed: 11.00am -12.30pm
Fri: 11.00am - 12.30pm

Course Syllabus:

Sr	Topic	Lectures
1.	Introduction to floating point number system and errors	~1
2.	Linear Algebra, Solution to Set of Linear equations	~2
3.	Introduction to Python	~1
4.	Interpolation and Curve Fitting	~3
5.	Roots of equations	~3
6.	Numerical Differentiation and Integration	~3
7.	Solutions of Differential Equations, stability, convergence, etc.	~10
9.	Eigenvalue Problems	~3
10.	Random numbers	~2
11.	Brief introduction to optimization	~2
		Total Lectures ~30

Evaluation:
Assignments and Project: 20%
Mid-Semester Exam: 30%
Final Exam: 50%
(There may be some variation in this scheme)

References:

Notes will be sufficient, but following are some of the books that I refer to:

1) Jaan Kiusalaas, *Numerical Methods in Engineering using Python*, Cambridge University Press, (2005/2010).
2) R. W. Hamming, *Numerical Methods for Scientists and Engineers,* Dover Publications, (1973).
3) William Press *et al.*, *Numerical Recipes in C*, Cambridge University Press, (1988).
4) Samuel Conte and Carl de Boor, *Elementary Numerical Analysis: An Algorithmic Approach,* McGraw-Hill, (1981).