Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	MATH/CS 475
Course Title	Numerical Analysis I
Semester Hours	3
Course Coordinator	Math Department
Revision Term	
Latest Revision	

2. Catalog Description

Introduction to theory & techniques for computation with digital computers. Topics include: solution of nonlinear equations; interpolation & approximation; solution of systems of linear equations; numerical integration. Students will use MATLAB to study the numerical performance of the algorithms introduced in the course.

3. Textbooks

- *Numerical Analysis,* Burden, Richard L. and J. Douglas Faires. Kentucky: Cengage Learning, 9th Edition, 2010. ISBN: 9780538733519.

4. References

5. Course Learning Outcomes

- To learn the theory and practice of numerical computation.

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6	7	8	9	10
Assessed	X									X

7. Prerequisites by Topic

MATH 221 and MATH 250 with C or better.

8. Major Topics Covered in the Course

1. The nature of digital computing {2 classes}
2. Taylor's formula {1 class}
3. Discrete methods {3 classes}
4. Root finding {9 classes}
5. Interpolation {6 classes}
6. Approximation of functions {9 classes}
7. Numerical solution of Ax=b {10 classes}