APPLIED MATHEMATICS 493
" NUMERICAL ANALYSIS II"

Calendar Description: H(3-1T)

Numerical differentiation, numerical solution of ordinary and partial differential equations.

Prerequisite: Mathematics 311, 353, Applied Mathematics 311, 413 and 491 or Computer Science 491.

Suggested Text: "Numerical Analysis" by Burden and Faires.

Syllabus

Topics	Number of Hours
Numerical differentiation	3
Numerical Solution of Ordinary Differential Equations:	
• Euler's Method	2
• Multistep Methods	3
• Runge-Kutta Methods	3
• Stiff Equations and Stability	3
• Adaptive Methods	3
Numerical Solution of Partial Differential Equations:	
• Finite Difference Methods: Elliptic equations; Hyperbolic equations; Parabolic equations	10
• Variational Techniques, Galerkin's Method, The Rayleigh-Ritz Method, The Finite Element Method	9
TOTAL HOURS	**36**

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