

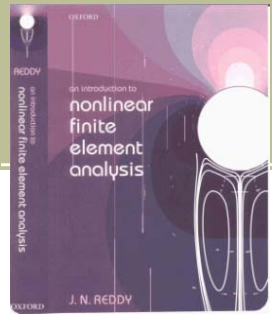
SHORT COURSE (N. 6) / 21 June, 2009

'Least-Squares Finite Element Analysis of Problems in Fluid and Solid Mechanics'

ACE-X 2009 / Rome, Italy / from 22-23 June, 2009



3rd International Conference on Advanced Computational Engineering and Experimenting



SHORT COURSE (N.6): 'Least-Squares Finite Element Analysis of Problems in Fluid and Solid Mechanics'

by Professor Dr. J.N. Reddy (Lecturer)

Announcement:

Date 21 June / Time 17.45– 20.45

SCOPE

The finite element method is a numerical and computer-intensive technique of solving a variety of practical engineering problems that arise in different fields including, heat transfer, fluid mechanics, and solid and structural mechanics. It is recognized by developers and users as one of the most powerful numerical analysis tools ever devised to analyze complex problems of engineering. There exist a large number of general purpose finite element computer programs (for example, ABAQUS, ADINA, ANSYS, MSCNASTRAN, etc) with varying degree of sophistication and analysis capabilities to analyze physical problems with complex domains, physical features (e.g., geometric and material nonlinearities), and subjected to thermal, mechanical and/or hydrodynamic loads. These programs contain a variety of elements for the analysis of practical engineering problems.

This course is intended to provide aerospace, civil, mechanical engineers as well as numerical analysts and materials scientists with recent developments in nonlinear finite element models of problems of fluid and solid mechanics using the least-squares method.

CONTENTS

General introduction to various methods of approximation
Least-squares finite element formulations – general theory
Illustrative examples (beams, Poisson equation)
Least-squares finite element models of plates and shells
Least-squares finite element models of flows of viscous, incompressible fluids.

COURSE MATERIAL

A CD with slides and certificate of attendance will be given to all participants. The attendees will benefit by having copies of the instructor's introductory finite element book *An Introduction to the Finite Element Method*, 3rd ed. (McGraw-Hill, New York, 2006), and the nonlinear finite element book *An Introduction to Nonlinear Finite Element Analysis* (Oxford University, Oxford, UK, 2004).

Registration for this course can be done under:

<http://www.ace-x2009.com/register.html>

More information is available through:

The web page of the conference www.ace-x2009.com

Prof. Dr. J. N. Reddy: jnreddy@tamu.edu

ABOUT THE LECTURER

Professor JN Reddy holds the special rank of Distinguished Professor (only 1% university may hold such a rank) and he was appointed as the inaugural holder of the Oscar S. Wyatt Endowed Chair since 1992. Dr. Reddy is the author of 16 engineering textbooks (not counting subsequent editions) at the undergraduate and graduate levels, and over 370 journal publications and 600 conference presentations. Dr. Reddy's research centers on theoretical formulations and numerical simulations (using the finite element method) of problems in applied sciences like computational biology, geology and geophysics, solid and structural mechanics, computational fluid dynamics, numerical heat transfer, and applied mathematics. As a result of his extensive publications of text books and archival journal papers in wide range of topics in applied sciences and engineering, Dr. Reddy is one of the very few researchers in engineering around world that is recognized by ISI Highly Cited Researchers with over 10,000 citations with H-index of over 40 to his credit. A more complete resume can be found at

<http://authors.isihighlycited.com>

<http://www.tamu.edu/acml>

IMPORTANT DATES:

- ✓ Abstract Submission Deadline 27 March
- ✓ Notification of Acceptance 03 April
- ✓ Early Bird Registration 17 April
- ✓ Accommodation Reservation 20 April
- ✓ **Short course 21 June**
- ✓ ACE-X 2009 22-23 Jun 2009