OMICS International
conferenceseries.com

2ⁿᵈ International Conference and Exhibition on
Industrial Engineering

November 16-18, 2015   Dubai, UAE

N S V Kameswara Rao

Universiti Malaysia Sabah, Malaysia

Algorithms for analysis of industrial structures and components

Several scientific, engineering and natural phenomena are complex and are not amenable for exact solutions. These phenomena are broadly classified in terms of the following mathematically different classes of problems: Equilibrium problems; Eigen value problems; Propagation problems and other problems not covered in these categories. Analysis of industrial structures and components of different shapes, sizes operating under diverse environments is the starting step for proper design and subsequent optimization processes. These components usually are in static or dynamic equilibrium besides thermal or other influences. Their analysis falls mostly in one or more of the above categories of problems. With the ready availability of high performance PCs, they are usually analyzed either by Finite Element methods (FEM) or efficient numerical procedures. Suitable algorithms have to be identified and/or developed for implementation of these numerical procedures logically for computing the desired solutions. An algorithm is the sequence of logical steps required to perform a specific task such as solving a problem. It is analogous to a recipe. Important phenomena in Science and Engineering pertaining to the above classes of problems are reviewed. Algorithms commonly used for solving these phenomena are highlighted. Application of these phenomena for solving specific problems of industrial structures and components are outlined. Several examples of each of these classes of problems are illustrated. The vastly different and distinctive features of these problems are identified. The various numerical procedures available (besides the above commonly adopted algorithms) for solving these distinctive mathematical equations are presented. The algorithms and their characteristics for possible application to these problems are discussed. The usual shortcomings of these algorithms, error analysis, diagnostic and remedial measures are indicated. The need for developing efficient and accurate algorithms is stressed. Quality control aspects are discussed. Flow charts for these algorithms are presented for ready application in the analysis of Science and Engineering problems in general and industrial structures and components in particular.

Biography

N S V Kameswara Rao has done PhD in Engineering from IIT Kanpur, India. Currently, he is working as a Professor at School of Engineering and IT Universiti Malaysia Sabah. He has done his ME from IISC Bangalore. He is a Member of Editorial Board of *International Journal for Engineering Analysis and Design*, Wiley Eastern Ltd., India. He has about fifty publications to his name. His research area includes Numerical Algorithms, Computational Mechanics, Computer Aided Design, Foundation Dynamics, Finite Element Analysis, Soil-Structure Interaction, Geomechanics, and Numerical Methods and Analysis.

nsvkrao@gmail.com

Notes:

Ind Eng Manage 2015

ISSN: 2169-0316, IEM an open access journal

Industrial Engineering 2015
November 16-18, 2015

Volume 4 Issue 5

Page 22