Basic Structured Grid Generation: With an introduction to unstructured grid generation

By M Farrashkhalvat, J P Miles

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Finite element, finite volume and finite difference methods use grids to solve the numerous differential equations that arise in the modelling of physical systems in engineering. Structured grid generation forms an integral part of the solution of these procedures. *Basic Structured Grid Generation* provides the necessary mathematical foundation required for the successful generation of boundary-conforming grids and will be an important resource for postgraduate and practising engineers.

The treatment of structured grid generation starts with basic geometry and tensor analysis before moving on to identify the variety of approaches that can be employed in the generation of structured grids. The book then introduces unstructured grid generation by explaining the basics of Delaunay triangulation and advancing front techniques.

- A practical, straightforward approach to this complex subject for engineers and students.
- A key technique for modelling physical systems.

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Editorial Review

From the Publisher
All engineers and physical scientists invloved in the modelling of physical systems will find this book an essential text to start them on their models.

From the Back Cover
The essential introduction to structured and unstructured grid generation for engineers and students.

Finite element, finite volume and finite difference methods use grids to solve the numerous differential equations that arise in the modelling of physical systems in engineering. Structured grid generation forms an integral part of the solution of these procedures. Basic Structured Grid Generation provides the necessary mathematical foundation required for the successful generation of boundary-conforming grids and will be an important resource for postgraduate and practising engineers.

The treatment of structured grid generation starts with basic geometry and tensor analysis before moving on to identify the variety of approaches that can be employed in the generation of structured grids. The book then introduces unstructured grid generation by explaining the basics of Delaunay triangulation and advancing front techniques. A companion website fully supports this book by providing numerical codes in FORTRAN 77/90 for both structured and unstructured grid generation which will help the reader to develop their understanding and make progress in grid generation.

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