



# Mechanics of Composite Materials and Structures

By Madhujit Mukhopadhyay

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Fibre reinforced plastic (FRP) materials have a wide range of applications in various engineering structures - offshore, maritime, aerospace and civil engineering; machine components; chemical engineering applications and so on. The scope for intelligent exploitation of these composites is ample, though the actual use has been limited. This is mainly because of the paucity of adequate knowledge on FRP composite materials, its structural mechanics and structural analysis among practicing engineers. Mechanics of Composite Materials and Structures is an attempt to present an integrated and unified approach to the analysis of FRP composite materials. The micromechanics and lamination theory of composite structural elements are discussed in detail. Closed form analytical solutions as well as numerical techniques for solving problems in FRP analysis are presented. Applications of the finite element method for the analysis of FRP structural elements are given considerable emphasis.

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#### **About the Author**

Dr Madhujit Mukhopadhyay is a professor in the department of Ocean Engineering and Naval Architecture, IIT Kharagpur. His field of research is in the area of plates and shells (bare or stiffened). He has a large number of research publications in reputed international journals of civil, mechanical, aerospace, engineering, and naval architecture and is the author of two textbooks.

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