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Tribology, Second Edition: Friction And Wear Of Engineering Materials



Synopsis

Tribology: Friction and Wear of Engineering Materials, Second Edition covers the fundamentals of tribology and the tribological response of all classes of materials, including metals, ceramics, and polymers. This fully updated and expanded book maintains its core emphasis on friction and wear of materials, but now also has a strengthened coverage of the more traditional tribological topics of contact mechanics and lubrication. It provides a solid scientific foundation that will allow readers to formulate appropriate solutions when faced with practical problems, as well as to design, perform and interpret meaningful tribological tests in the laboratory. Topics include the fundamentals of surface topography and contact mechanics, friction, lubrication, and wear (including tribo-corrosion), as well as surface engineering, selection of materials and design aspects. The book includes case studies on bearings, automotive tribology, manufacturing processes, medical engineering and magnetic data storage that illustrate some of the modern engineering applications in which tribological principles play vital roles. Each chapter is complemented by a set of questions suitable for self-study as well as classroom use. This book provides valuable material for advanced undergraduates and postgraduates studying mechanical engineering, materials science and other technical disciplines, and will also be a useful first reference point for any engineer or scientist who encounters tribological issues. Provides an excellent general introduction to friction, wear, and lubrication of materials Acts as the ideal entry point to the research literature in tribology Provides the tribological principles to underpin the design process Through systematic coverage of the subject and appropriate questions, develops the reader's understanding and knowledge of tribology in a logical progression.

Book Information

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Customer Reviews

From reviews of the first edition: "a book with contents, style and depth of approach all carefully selected, honed and polished from successful courses taught in Cambridge." (Times Higher Education Supplement) "addresses its specific themes of friction and wear in an up-to-date, well-interpreted, lively and authoritative manner." (Proceedings of the Institution of Mechanical Engineers)

Professor Ian Hutchings has been GKN Professor of Manufacturing Engineering at the University of Cambridge since 2001. Before that, he was Reader in Tribology in the Department of Materials Science and Metallurgy. He has extensive experience in research and teaching on tribological topics. From 1998 to 2012, he was Editor-in-Chief of the international journal, *Wear*. He is the sole author of the first edition of 'Tribology: Friction and Wear of Engineering Materials' published in 1992, as well as numerous journal and conference papers. In 1994, he was awarded the Tribology Trust Silver Medal, in 2000 the Donald Julius Groen Prize by the Institution of Mechanical Engineers and in 2007 the Staudinger-Durrer Prize by ETH Zürich. Professor Philip Shipway has been Cripps Professor of Engineering Materials at the University of Nottingham since 2006, having been a member of the academic staff there since 1994. He has extensive experience in research and teaching on tribological topics, and has published numerous papers in the field. Since 2013, he has been Co-Editor-in-Chief for the international journal, *Wear*.

I have used the first edition of this book since it was first published. For myself its major attribute is that it is a concise, digestible, and practical guide to tribology. Like many of my colleagues, tribology is an essential part of machine design. However, when developing processes, this is one of many fields that must be assimilated and incorporated into the day to day challenges in our profession. Consequently, there are a lot of engineers and experimental scientists who do not need to be experts but want to get up to speed quickly. This is the book for that professional. This new edition is around 100 pages longer. However, a substantial amount of the new material is practical guidance and illustrative application discussion that, in my opinion, strengthens its relevance to practicing engineering professionals. The length of the book is still within the scope of a single semester course on the subject and therefore, also hits the target as an introductory text for senior level

undergraduate and introductory graduate university courses.

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