

Materials, Design and Sustainability

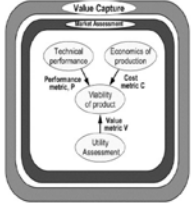
By Emeritus Professor Mike Ashby

We SHARE to inspire and ignite ideas!

WORKS BY Mike Ashby

COMMERCIALISATION OF NEW MATERIALS

Journal Article



Investing in new materials: a tool for technology managers

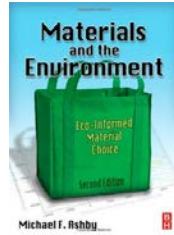
By Mike Ashby, Elicia Maine and David Probert (2005)

Discover the Investment Methodology for Materials (IMM) a technology management tool, which aids in the commercialisation of new materials. It consists of three aspects, namely viability analysis, market assessment and value capture.

Source: [Technovation](#)

ENVIRONMENTAL ASPECTS OF MATERIALS

Book



Materials and the environment : eco-informed material choice

By Mike Ashby (2013)

Analyses human dependence on materials and the environmental impacts arising from that. Provides a framework for environmentally-friendly materials that can be employed in the consideration of materials for use and subsequent product design with materials.

Available @ Pedagogy Collection (TA403.6 ASH)

HISTORY OF MATERIALS

Journal Article



Materials—a brief history

By Mike Ashby (2008))

Presenting discoveries and uses of materials over history. The development of materials and progressive filling of material-property space over time was featured during the lecture series talk.

Source: [Philosophical Magazine Letters](#)

HYBRID MATERIALS

Journal Article



Designing architected materials

By Mike Ashby (2012)

Architected materials are an aggregation of multiple materials or of materials and space. Their assembly enables them to have unique properties. Read about how and why architected materials are used.

Source: [Scripta Materialia](#)

MATERIALS AND PRODUCT DESIGN

Book



Materials and design : the art and science of material selection in product design

By Mike Ashby and Kara Johnson (2010)

Discusses the role materials have played in product design over the years. It provides detailed descriptions of physical, mechanical and chemical properties of some common materials.

Available @ General Lending (TS171 ASH)

MATERIALS AND SUSTAINABILITY

Book



Materials and sustainable development

By Mike Ashby (2016)

Presents a framework to study the role materials play in sustainable development. There are six case studies such as biopolymers, electric cars, bamboo, and lighting to explain the sustainable development process from a materials perspective.

Available @ Pedagogy Collection (TA403.6 ASH)

MATERIAL ENGINEERING

MATERIAL FAILURE

MATERIAL FRACTURE PROPERTIES



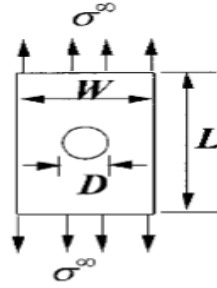
eBook

**Materials :
Engineering,
Science,
Processing and
Design**

By Mike Ashby,
David Cebon and
Hugh Shercliff
(2007)

Here is a comprehensive guide to materials in engineering. Incorporates real-life case studies to show how materials are used in the processing and design phases. Also explains material properties, such as yield and plasticity in detail.

Source: [eBrary](#)



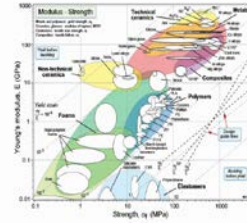
Journal Article

**Tensile and
Compressive
Failure of
Notched Cellular
Foams**

By Mike Ashby,
Olujide B. Olurin
and Norman A.
Fleck (2001)

This study was carried out to analyse how a central open hole influenced the tensile and compressive strengths of notched cellular foams. It was found that in compression and in tension, the foams were not sensitive to the notches.

Source: [Advanced Engineering Materials](#)



Journal Article

**Mapping the
fracture
properties of
engineering
materials**

By Mike Ashby
(2013)

This article provides diagrammatic representations of how various material properties are related to one another – in particular fracture properties.

Source: [Philosophical Magazine](#)

MATERIALS IN AEROSPACE SYSTEMS

Technical Report



**Materials
Selection for
Aerospace
Systems**

By Mike Ashby,
David Cebon and
Steven Arnold
(2012)

This report provides a detailed scheme with five steps, for material selection in aerospace systems. It also has material selection charts and explains how material properties can be adjusted to improve device performance.

Source: [NASA](#)

MATERIAL SELECTION

eBook



**Materials
selection in
mechanical
design**

By Mike Ashby
(2011)

Read about procedures for material selection in mechanical design to help you select the most appropriate materials for various applications. Case studies are also presented to emphasize the importance of material selection.

Source: [Knovel](#)

OVERVIEW OF MATERIAL SELECTION

Journal Article



**The art of
materials
selection**

By Mike Ashby
and Kara
Johnson (2003)

Discover how materials are chosen for everyday purposes. Functionality and aesthetics are two considerations. Beyond that, other factors such as perceived associations and human expressions are also taken into account.

Source: [Materials Today](#)

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