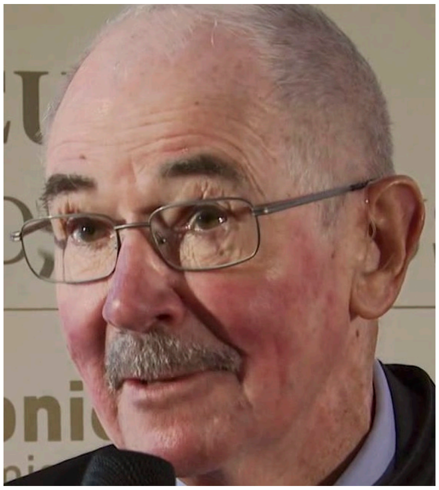
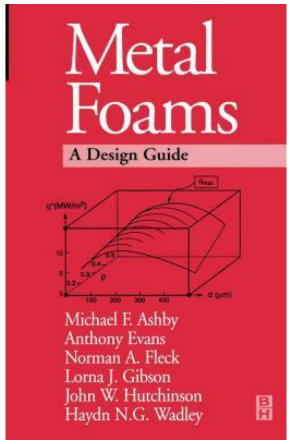

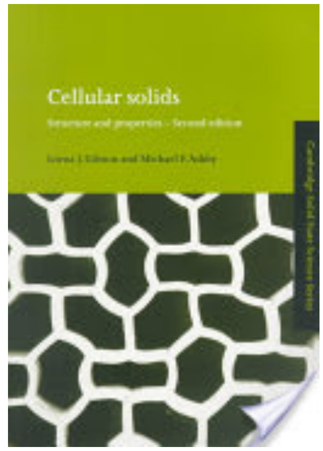

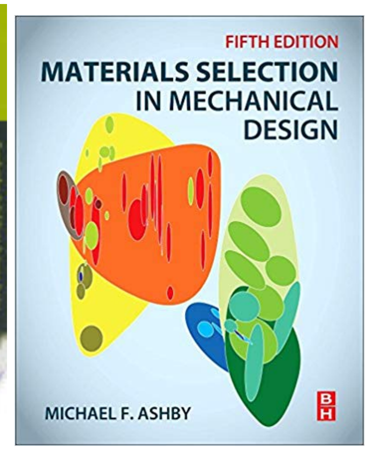

Professor Michael F. Ashby

See:
https://en.wikipedia.org/wiki/Michael_F._Ashby
https://www.amazon.com/Michael-F.-Ashby/e/B001H6O4R6%3Fref=dbs_a_mng_rwt_scns_share
https://www.youtube.com/watch?v=3l73pNjtdCY
https://mse.utoronto.ca/alumni-industry/mse100/leadership/ashby/
https://www.goodreads.com/author/list/497391.Michael_F_Ashby
https://www.researchgate.net/scientific-contributions/2090263830_Michael_F_Ashby

Biography (from Wikipedia):
Ashby was educated at Campbell College in Belfast and the University of Cambridge where he studied the Natural Sciences Tripos as a student of Queens' College, Cambridge. He received his Bachelor of Arts degree in Metallurgy in 1957 (First Class Honours); his Master of Arts degree in 1959 and his PhD in 1961.
By conducting numerous studies on the active deformation mechanisms under different temperature conditions, M.F. Ashby developed a graphical approach for determining these mechanisms. He generalizes this approach to the broader field of material selection by developing the software CMS(Cambridge Materials Selector) in collaboration with David Cebon, with whom he co-founded Granta Design Limited. He also collaborated extensively with Yves Bréchet (CNRS Silver Medal). He continued to work on the software to improve its pedagogical value across Materials Education (CES EduPack – used at more than 1000 universities worldwide and value to industry (CES Selector). This software is currently available from the company Granta Design, of which he is the chairman.
Ashby has revolutionized the approach to the selection of materials to take into account four aspects: feature, material, geometry, and processes; moreover, he worked with the division in classes and subclasses. In doing so he has developed a comprehensive approach that associates to the expected mechanical functions of an object a performance index that has to be optimized. These indices allow to better take into account all the properties required of a material, such as specific stiffness (ratio between the elastic modulus and density) instead of single elastic module. His approach allows to rationally choosing the most suitable materials for each application.
In practice, this approach firstly asks to identify the performance index starting from the expected function and geometry. Then it is possible to select thresholds for certain properties in order to select the most useful materials from those present in a database that has some 80,000 materials. The division into classes allows pre-selecting representative materials and therefore working only with certain classes of materials. Finally, the

selected materials are shown in a 2-dimensional chart, called the Ashby diagram, in order to view those with the highest performance index. These diagrams often contain also nanostructured materials and composites.

- Materials Selection for Mechanical Design – standard text used around the world.
- Materials and Design – book – Aesthetic attributes as well as technical attributes of materials, making products delightful as well as functional.
- Materials Processing Science and Design- introductory textbook – trying to motivate engineers to learn about materials by starting with design.

In more recent years he has concentrated on materials and the environment and sustainability, writing award-winning textbooks and pioneering teaching methods to get this complex topic across to engineering students. He has been honored by the American Society of Engineering Education by having a teaching prize named after him.

Ashby has achieved a remarkably innovative work in the areas of materials, design, and sustainability as well as in that of pedagogy. His works on materials are comparable to those of Carrega and Colombié.

Awards and Honors (from Wikipedia):
elected a Fellow of the Royal Society (FRS) in 1979
received the A. A. Griffith Medal and Prize in 1981
elected a Fellow of the Royal Academy of Engineering (FREng) in 1993
appointed CBE in the 1997 Birthday Honours
nominated a Foreign Honorary Member of the American Academy of Arts and Sciences in 1993
awarded the Eringen Medal in 1999

Selected Publications (emphasis on thin-walled structures):
Books:
M. F. Ashby and D. R. H. Jones. Engineering Materials 2. An Introduction to Microstructures, Processing and Design. Pergamon Press, Oxford, UK, first edition, 1986.
Gibson, LJ, Ashby MF (1999) Cellular solids, structure and properties. Cambridge University Press, 510 pages
Michael F. Ashby, et al, Metal Foams A design guide, Butterworth-Heinemann, 2000, 267 pages
Cellular Materials in Nature and Medicine, edited by Lorna J. Gibson, Michael F. Ashby and Brendan A. Harley, 2010, Cambridge University Press, ISBN 978-0-521-19544-7
Michael F. Ashby, Materials Selection in Mechanical Design (5th Edition), Butterworth-Heinemann, 2017, 660 pages
Journal Articles, etc.:
Ashby, M.F., 1982. On the mechanics of Balsa and other wood. Proc. R. Soc. Lond A 383, 31e41.
Gibson, L. J., Ashby, M. F., Schjaer, G. S., and Robertson, C. I., 'The mechanics of two-dimensional cellular materials', Proceedings of the Royal Society of London Series A 382(1782), 1982, 25–42.
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Anthony G Evans, John W Hutchinson and Michael F Ashby, "Cellular metals", Current Opinion in Solid State and Materials Science, Vol. 3, No. 3, June 1998, pp. 288-303
Ashby MF, Evans AG, Hutchinson JW. Cellular Metals, a Design Guide. Cambridge: Cambridge University, Engineering Department, 1998.
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Andrews E.W., Gibson L.J., Ashby M.F.: The creep of cellular solids. Acta Mater. 47, 2853–2863 (1999)
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