Discovery

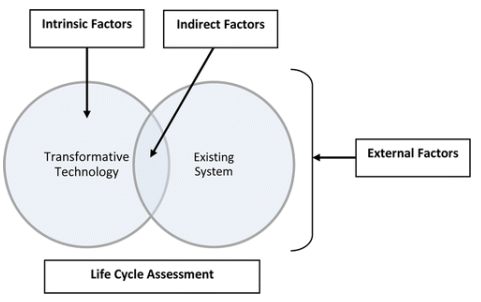
We SHARE to inspire and ignite ideas for
Engineering Systems & Design (ESD) Pillar!

The titles featured here are to give you a peek into the wealth of resources we have. We hope, through this will encourage you to explore and read further. Share with us topics of importance to ESD and we can introduce relevant titles from some 400,000 eBooks we carry.

April 2016

LIFE CYCLE ASSESSMENT

Framework for Analyzing Transformative Technologies in Life Cycle Assessment



New products and technologies can be tricky for life cycle assessment (LCA), due to insufficient data on their development. The article identifies and categorizes 10 factors affecting LCA results of transformative technologies. This aims to show a way to determine which factors are to be considered in a LCA process.

Source: Environmental Science and Technology (January 2015)

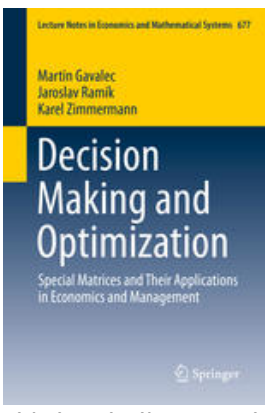
Monetary valuation in Life Cycle Assessment: a review

Monetary valuation refers to converting social and biophysical impacts into financial units. It is used in cost benefit analysis. The authors analysed different monetary valuation methods to be used in LCA. Firstly, monetary valuation methods, and LCA applications were studied. Secondly, the authors analysed the characteristics of each monetary valuation method. The authors discovered that the choice experiment method and the budget constraint method are good for monetary valuation in LCA.

Source: Journal of Cleaner Production (January 2015)

OPTIMIZATION

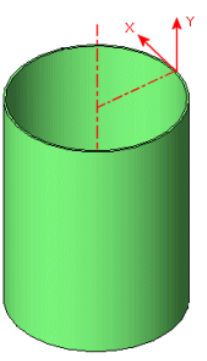
Decision Making and Optimization- Special Matrices and Their Applications in Economics and Management



This book discusses how decision making and optimization is carried out from an economics and management perspective. It pays special attention to how matrices are used in decision making and to optimization problems.

Source: Lecture Notes in Economics and Mathematical Systems (2015)

Optimal Thickness of a Cylindrical Shell Subject to Stochastic Forces

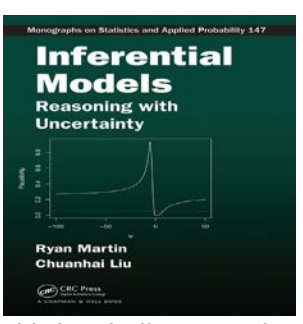


This article discusses sizing of the thickness of a cylindrical shell with a stochastic force applied to it. The variational principle of stochastic partial differential equations (PDEs) was used to find the required optimality conditions for the thickness. The authors aim to find the optimal thickness of a cylindrical shell so that it does not deform when a stochastic force is applied to it.

Source: Journal of Optimization Theory and Applications (December 2015)

STATISTICS APPLICATION

Inferential Models: Reasoning with Uncertainty



This book discusses the use of inferential models in statistics and starts by discussing fundamental principles of inference. It mentions conditional, marginal and generalized inferential models. It also mentions linear models.

Source: C&H/CRC Monographs on Statistics & Applied Probability (2015)

Teaching principles of inference with ANOVA

Analysis of variance (ANOVA) is a test of mean differences. This article provides classroom activities that illustrate how ANOVA works. The first activity involves conducting multiple t-tests on data of math scores of students in 3 different courses. Another activity involves analysing the spread of the sample means of the math scores mentioned.

Source: Teaching Statistics (Spring 2016)