

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF AEROSPACE AND MECHANICAL ENGINEERING
AME30362: Design Methodology, Fall 2009

P8 - Readings Project – Option I
Project Due Date: Tues. Dec. 1, 2009

This project will give you the opportunity to explore topics related to design and to extend your understanding of engineering design by reading a book of your choice related to this topic.

Project Requirements:

If you select this project you are required to read a book related to the general topic of design. This book can be selected from the following list of suggested titles, or you can request the opportunity to read a book of your choice. The books indicated below should be available in various bookstores, via Amazon or other on-line book sources. If you want to read another book for this project, you must request and receive approval in writing from the course instructor to do so. Please provide the title, author and any other pertinent information on the book to assist in determining if it is appropriate for this project. The purpose of the project is to motivate you to read a “new” book so that if any of the books cited below or the book you propose to read is one you have already read or has been assigned to you in a previous or current course, it does NOT satisfy the requirements for this project. After reading the book, you will write a book review providing your assessment of the value of this book in providing you with information and perspectives related to design. Thus it is not a book report in a tradition sense but you will be expected to discuss insights gained and issues raised in reading the book. In this review you will explicitly state what you felt were your **three key take-away points emphasized in the book**. The review must be no longer than 750 words. (approx. 1 ½ pages, single spaced, 12-pt font)

List of Suggested Books:

Pink, Daniel H., *A Whole New Mind*, 2005, Riverhead Books, New York, New York. [A best-seller that even made it to Oprah’s show. Discusses the need to combine “right and left brain” thinking perspectives in the future.]

Simon, Herbert A., *The Sciences of the Artificial: Third Edition*, 1996, The MIT Press, Cambridge, Massachusetts. [A seminal work by a Nobel laureate that presents many challenging ideas pertaining to our “man-made” world with applications ranging from engineering to economics.]

McDonough, William, and Braungart, Michael, *Cradle to Cradle: remaking the way we make things*, 2002, North Point Press, New York, New York. [This book focuses on design from the perspective of environmental sustainability – some editions of the book itself were printed on plastic! This is a topic of ever-increasing importance]

Gelb, Michael J., *How to Think Like Leonardo da Vinci: Seven Steps to Genius Every Day*, 1998, Dell Trade Paperback, New York, New York. [Guidelines and exercises to help you explore and develop your creative abilities.]

Kelley, Tom, The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm, 2001, Currency Book, New York, New York. [Details the philosophy and some aspects of the activities in one of the worlds top product design firms.]

Kelley, Tom, The Ten Faces of Innovation, 2005, Currency-Doubleday, New York. [Attempts to classify individual characteristics that contribute to collaborative design activities. May prove useful in exploring your own professional personality and interests.]

Lienhard, John H., How Invention Begins: Echos of Old Voices in the Rise of New Machines, 2006, Oxford University Press, Oxford, England. [More historical than most of the other books but traces the innovation and development of some key technologies.]

Petroski, Henry, Small Things Considered: Why There is No Perfect Design, 2003, Vintage Books, New York, New York. [Some introductory concepts but a series of chapters that describe design, development and use of various products. Somewhat tedious at times but illustrates the impact of design in many facets of life.]

McKim, Robert H., Thinking Visually: A Strategy Manual for Problem Solving, 1980, Dale Seymour Publ., Parsippany, New Jersey. [Provides a strategy for developing your ability to think and express yourself visually.]

Edwards, Betty, The New Drawing on the Right Side of the Brain, 1999, Penguin Putnam Inc. [This book provides insights and instruction on visual expression of ideas. If you select this book you would be expected to complete the drawing exercises and submit your sketchbook along with your report.]

Norman, Donald A., The Design of Everyday Things, 1990, Currency-Doubleday, New York, New York. [Somewhat dated but it emphasizes how people interact with the technologies in the world around them and how that should influence their design.]

Papenek, Victor, Design for the Real World – Human Ecology and Social Change (Second Edition), Academy Chicago Publishers. [Strong opinions on the impact of technology and design on society. It provides a thought provoking perspective. It may be a bit harder to locate this one as it has been out of print for a long time.]