Prerequisites:  Enrollment in a College of Engineering PhD program or a Graduate School of Management program.

A successful corporation reliably returns profit to the shareholders which often requires collaboration between business management and highly technically trained employees. In-house training in methods and culture occurs to varying degrees in larger companies but tend not to be available in smaller companies, especially start-ups. New employees entering any company with recently completed PhDs are expected to function as subject matter experts and, equally importantly, as project team members. A typical new PhD experiences confusion about project dynamics and his or her role and responsibilities. Similarly, inexperienced business management and marketing employees find collaboration with technical experts challenging.

The purpose of this one semester course is to equip students to participate effectively in product design projects in any organization. Through a combination of lectures and team exercises, students will learn the concepts and common tools for proposing and executing new product design, product life cycle management, business strategy alignment, and intellectual property protection.

To provide context and essential experience in interdisciplinary teamwork, a substantial part of the course will comprise a design studio in which students participate in the stages of Ideation, Feasibility, and Design, up to but not including functional prototype fabrication. Fundamental concepts and methods for brainstorming, Key Product Characteristic identification, feasibility analysis, and optimization through Design of Experiments are emphasized.

Grades will be based primarily on contribution to team presentations and reports. In class quizzes and one prelim will also be counted towards final grades.