Increasing Creativity in Undergraduate Engineering Students

This work presents an extracurricular course in Polytechnic School of The University of Sao Paulo – Brazil, designed to improve the necessary skills for creativity and innovation: in engineering undergraduate students. The creativity process is treated as a “four phases” process: perception, imagination, decision and realization. New teaching techniques applied in each phase were developed specifically for engineering students. The main focus is in product design and new businesses. A simple and efficient perception process based on uncomfortable situation perceptions is used to improve the problem definition. Some idea generation techniques were created or adapted for product design and the subjective decision making process are stimulated. This course acceptance and students progress are encouraging. The program includes: creativity definition, barriers to creativity, perceptions techniques, steps for problem characterization, how to avoid self-sabotage, idea generators, subjective and objective decision practice, idea implementation, exercises, activities and case studies.