

AICTE Sponsored Short Term Course

on

Product Design and Engineering

October 21st to 25th, 2013



Organized by

**Center for Continuing Education
&
Department of Engineering Design
Indian Institute of Technology Madras
Chennai - 600 036**

<http://ed.iitm.ac.in/~gsaravana/pd2013.htm>

BACKGROUND

In the current era, sustainable product development involves the efficient evaluation of multiple alternatives within the constraints of time and cost. Owing to the complex nature of modern technology, often a large team is required to design and develop a major new product. This introduces additional issues of organization and communication. To succeed in a new venture, the design process must be planned carefully and executed systematically. In particular, an engineering design method must integrate the many different aspects of design in such a way that the whole process becomes logical and comprehensible. To that end, the design process must be broken down, first into phases, and then into distinct steps, each with its own working methods. This course aims to present a systematic engineering design process encompassing the latest developments in theory and practice. The lab components of the course will impart hands-on experience in design practices.

COURSE CONTENTS

- Product Design - Introduction
- Functional and Conceptual Design
- Aesthetics and Art Appreciation
- Role of CAD in Design
- Reverse Engineering and Rapid Prototyping
- Design for X
- Detail Design
- Materials and Manufacturing
- Product Design Lab Practices
- Role of FEM in Design
- Concepts of Optimal Design
- Sustainability in Design
- Design Competition

FACULTY

Faculty members of IIT Madras and guest faculty members from other premier academic institutions and business establishments will deliver lectures.

ABOUT THE DEPARTMENT & FACILITIES

The Department of Engineering Design is the newest department at IIT Madras. The first of its kind in the country, the department offers a B.Tech. specialization in Engineering Design and M.Tech. specializations in Automotive Engineering and in Biomedical Design. It has excellent facilities for carrying out theoretical and experimental research in the areas of automotive systems, vehicle dynamics, mechatronics, control systems, robotics, ergonomics, CAD, additive manufacturing, product design and biomedical device development.

Product design and development for real time industrial applications is one of the focal areas of this department. Computer aided design tools are widely used in the design process. The department has a computational facility with several computing workstations, and software like Inventor®, MATLAB®, Algor® for digital sculpting, FE analysis, and design optimization etc. Several labs, including the robotics lab, smart materials lab, image processing lab and product design lab, use the design tools. These labs place a strong emphasis on research and support research oriented M.S. and Ph.D. programs.

COURSE MATERIAL

Each registered participant will be provided with a set of comprehensive lecture notes.

COURSE DURATION & VENUE

The course will run for five days, during **21st - 25th, October 2013**. Lectures will be held at the Industrial Consultancy and Sponsored Research (IC&SR) building, and Dept. of Engineering Design, IIT Madras, Chennai.

