

## 3<sup>rd</sup> Semester

### **ID 601 Advanced Product Design**

The emphasis of the course is on individually planned design projects in different product areas. Selection of these projects is based on consideration like close human interaction with product, wide range or requirements of different users and possibilities of formal and structural innovations. Projects and with a comprehensive presentation through working mock up models design drawing and a report. This project work is supported by theoretical information and short supporting assignment in following topics:

Role of creativity in problem solving, study of inhibitions, conformity and vertical thinking: assignments on using techniques like brain storming. Synectics to develop creative attitude and open mind. The development of modern design methods from craft evolution. Detailed discussion on stages in design process. Complimentary nature of systematic and creative thinking in various stages of design processes. Discussion on nature of synthesis.

Methodology for visual analysis of products. Principles of value analysis, use esteem, time and exchange values and definition of function.

#### **Texts/References:**

1. Jones J.C: Design Methods, Interscience
2. Buhl H.R. Creative Engineering Design Iowa State Univ. Pres..
3. Hill Percy H: The Science Of Engineering Design , Holt, Rinehart And Winston Inc,
4. De Bono Edward: Lateral Thinking Penguin 1972 William J.J. Gordon : Sysnectics, Collie Books 1968.

### **ID 602 - PRODUCT DESIGN FOR MARKET**

Elements of successful product design in their specialist market place. Study of engineering / marketing relationship, the buying motivation and perception of industrial buyers, individual customers, industry and government departments. Presentation of designs to potential customers. Accelerated product development, variety proliferation. Differentiated product “fast to market”.

### **ELECTIVE III**

#### **ID 615 NATURES OF MATERIALS AND PROCESSES**

Properties and usage of thermoplastic, thermosetting plastics, selection and use of plastics for engineering and consumer products. Design limitations and specific advantages of molding processes. Properties and use of rubber, ceramics and glass. Ferrous and non ferrous metals-various processes and assembly techniques. Concepts of structure and costing. Properties of natural materials like wood, bamboo cane leather cloth jute and paper and their use at craft and industrial levels.

#### **Text/References:**

1. Production Engineering Series. Plastic Forming. John D, Beadle, Product Treatment And Finishes
2. Macmillan. Heman H.Jorth, Basis Wood Working Process. The Bruce Publishing Co.

#### **ID 616 DETAILED DESIGN OF ROTATING MACHINES**

Component & assembly design, use of cad procedure for designing, application of optimization techniques, modeling and evaluation of components & assembly, specific examples to be taken such as centrifugal pump, wind turbines, machine tools etc. calculation of stresses and strengthening of blades.

### **ID 648 - PROJECT PHASE I**

### **ID 698 - PROJECT - II**

