TID 8105: Advanced Product Design and Development

Hours per semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit Units
LH	PT	TH	CH	WTM	WEM	WCM	CU
45	00	00	45	100	60	40	3

Course description

This course requires that students get to know the basic procedure of designing products and services. This entails that students learn methods of transforming clients' wants into specifications to enable the design of products, taking into mind restrictions of costs and space.

Course objectives:

After completing this course the students should understand and be able to plan and implement the technical aspects of product development within a company.

Learning outcomes:

The students should be able to know clearly the following;

i) Be able to get product specifications after discussions with the customers
ii) Be able to get concepts from scratch and design a product using the specified procedures of product development.
iii) Be able to cost for every stage of the product development, and look out for ways of minimizing them.

Methods of course delivery:

The teaching of students will be conducted through lectures, tutorials, short classroom exercises, case studies, group discussions among the students and projects aimed at solving real life problems. The lecture material will be availed to the students in advance to enable them have prior reading. Solving real life problems in each theme or a number of topics will enhance the students' understanding of the problem based learning techniques

Method of assessment

Assessment will be done through coursework which will include assignments, class room and take home tests, project work and presentations and a written examination. Case studies and product design challenges will be used in the course. Course work will carry a total of 40% and written examination carries 60%. Coursework marks will be divided into; Assignments 5%, Tests 10% and Practical Work 25%.

Course content

i. Introduction to product design (4 hours),
ii. The product design and development process (6 hours),
iii. Product life-cycle. Product specifications, Concept generation,

selection and testing (10 hours)

iv. Product architecture, Industrial Design and modelling (10 hours),

v. Prototyping, Product development economics (10 hours).

Basic reading list/references

1. Grossman I. E, global optimization in Engineering Design (non convex Optimization and its application), Springer, 1st Edition, 1996
2. Industrial Engineering Book; Jorcad.com 2006-2009
3. Process oriented analysis; Design and optimization of industrial production systems, Meyer. Urs B, Creux Simone E. Weber Mann, Audrea K. 2006.