Shaheed Zulfikar Ali Bhutto
Institute of Science & Technology

Design and Simulation Lab

Courses Covered:

Engineering Drawing II
Network Analysis
Solid Modelling
Engineering Elective I and II

Lab Engineer: Engr. Mubeen Ahmed Khan
BE Electronics (Humdard University)

Date Revised: 25-Jan-2019

List of Figures

Figure 1: Pictorial View 1 2

Pictorial View Of Lab

Figure 1: Pictorial View 1

Course Description

1) Engineering Drawing II

This course introduces students to basic of CAD designing through a series of experiments. This includes the understanding towards standards followed globally.

a. Course Meeting Times

Labs: 1 session / week, 3 hours / session

b. Description

Initially students are introduced with the basic AutoCAD commands and computer-aided-drafting concepts to draw, design, and draft. Emphasis is placed on efficient and accurate drawing techniques incorporating the features, commands, and techniques for creating, editing, and printing 2D production drawings. During the latter part of the course students will create several mechanical CAD drawings following the ANSI (American Standards Institute) and ISO (International Standards Organization) standards. Introduction to electrical equipment's, components and method to determine resistance and capacitance.

2) Network Analysis

This course introduces students to the next level of basic of electric circuits. In this the students will use different types of RLC circuits and model their response on MatLab and other simulation softwares.

a. Course Meeting Times

Labs: 1 session / week, 3 hours / session

b. Description

The course focuses on the analysis and circuit's response of First and Second Order Circuits by formulation of the differential equation of the circuit and its solutions for DC and AC Forcing Functions. The concept of phasors and Laplace transformation are introduced as a tool to solve the circuit equations in Laplace and Phasor Domains. The course also covers the frequency response of a circuit through sinusoidal analysis. To reinforce theoretical concepts, Multisim based labs are also conducted during the course.

3) Solid Modelling

This course introduces students to the advanced level of CAD designing and analysis using Solidworks as interference of use.

a. Course Meeting Times

Labs: 1 session / week, 3 hours / session

b. Description

Solid Modelling II continues the work of Engineering Drawing II and covers intermediate level and advanced CAD skills. Included in this course will be file management, blocks, attributes, dynamic blocks, external references, parametric drafting, 3D surfaces & solids, rendering and architectural drawings using Solidworks Architecture. Additionally, students will also be learning the analysis different mechanical models