

# Course Outline

**Course Title:** Digital Electronics-II  
**Course Code:** (Phy-21306) 2 + 1 Credit Hours  
**Class:** M. Sc. Semester-IV & BS Semester VIII  
**Convener:** Prof. Dr. Sheikh Aftab Ahmad

Major Topics	
8-1 Shift Register Operations 8-2 Types of Shift Register Data I/O 8-3 Bidirectional Shift Registers 8-4 Shift Register Counters 8-5 Shift Register Applications 9-2 Asynchronous Counters 9-3 Synchronous Counters 9-4 Up/Down Synchronous Counters 9-5 Design of Synchronous Counters 9-6 Cascaded Counters 9-7 Counter Decoding 9-8 Counter Applications 11-1 Semiconductor Memory Basics 11-2 The Random-Access Memory (RAM) 11-3 The Read-Only Memory (ROM) 11-4 Programmable ROMs 11-5 The Flash Memory 11-6 Memory Expansion 11-7 Special Types of Memories 11-8 Magnetic and Optical Storage	12-1 Analog-to-Digital Conversion 12-2 Methods of Analog-to-Digital Conversion 12-3 Methods of Digital-to-Analog Conversion 12-4 Digital Signal Processing 14-1 The Computer System 14-2 Practical Computer System Considerations 14-3 The Processor: Basic Operation 14-4 The Processor: Addressing Modes 14-5 The Processor: Special Operations 14-6 Operating Systems and Hardware 14-7 Programming  <b>Introducing embedded systems and the microcontroller</b> Embedded systems and their characteristics The microprocessor reviewed Some microprocessor design options The microcontroller: its applications and environment

## Text Book

Digital Fundamentals (11<sup>th</sup> Edition) by Thomas L. Floyd

## Reference Books

Logic and Computer Design Fundamentals 3<sup>rd</sup> Edition by Mano and Kime,  
 Pearson Prentice Hall, (ISBN: 0-13-140539-X)

Digital Computer Fundamentals by T. C. Bartee, McGraw-Hill

Digital Electronics, 5<sup>th</sup> Edition by R. L. Tokheim, McGraw-Hill (ISBN 0-07-116796-)

**Assignments:** You will allocated and asked to submit five assignments on the following contact.

**Contact:** Professor (R) Sheikh Aftab Ahmad via email [draftab2@yahoo.com](mailto:draftab2@yahoo.com)

## Lab Couse

It includes Experiments 10 to 17 of the Lab. Manual.