Course Code: EITS - 209
Course Title: Digital Electronics II

Number of Credits: 03 **Total Hours: 42** **Total Marks: 75**

Prerequisites for the course

Basic knowledge of digital electronics and logic gates.

Objectives of Course

To acquire basic knowledge of advanced digital electronics. To prepare students to perform the analysis and design of various digital electronic circuits.

Course Content

Unit I	**Flip flops**	**7 Hours**

Basic FF: RS, Clocked RS, JK, D-type and T-type, Master Slave Concept, Shift register (shift left, shift right), Schmitt trigger. Applications of FF.

Unit II	**Counters**	**7 Hours**

Binary ripple counter, modulus of counter, BCD Decade Counter, cascade BCD decade counters, principle of digital counter and digital clock.

Unit III	**Asynchronous and synchronous sequential circuits**	**10 Hours**

Triggering of FF, Analysis and design of clocked sequential circuits, Design of Moore/Mealy models, state minimization, state assignment, circuit implementation, Stable and Unstable states, output specifications, cycles and races, state reduction, race free assignments.

Unit IV	**Memory devices**	**8 Hours**

Basic memory structure, ROM, PROM, EPROM, EEPROM, EAPROM, RAM, Static and dynamic RAM, Programmable Logic Devices.

Unit V	**AD and DA converter**	**10 Hours**

Digital to Analog Converters, Specifications, types and applications of D/A converter, Analog to Digital converters, Specifications, Types and applications of A/D converters.

Pedagogy

Lectures/Tutorial/Assignments/

Course Outcome

To understand and examine the structure of various flips-flops, counters and its application in digital design. The ability to understand, analyze and design various sequential circuits.

References/Readings

1. Digital Principles and Applications: Malvino and Leach TMH 4th edition 1986.
2. Electronics Devices and Circuits An Introduction: Allen Mottershed PHI 1997
3. Integrated Electronics: Millman and Halkias TMH 1972
4. Electronic Devices and Circuits: Millman and Halkais Mc Graw Hill 1967
5. Modern Digital Electronics: R. P. Jain TMH 3rd edition 2003.
6. Principles of Electronics: V.K.MethaS.Chand& Company 8th edition 2003.