Code and Name: EE 431 Digital Signal Processing.
Credit Hours: 3 (Lecture: 3, Tutorial: 1)

Textbook:
- Discrete Time Signal Processing, A. V. Oppenheim and R. W. Schafer, third Edition, McGraw-Hill Education, 2014.
Other References:
- None

Course Description:
System functions – discrete time Fourier transform – discrete Fourier transform – linear and circular convolution - Z-transform — sampling and aliasing – digital filter structures – signal flow graphs – elementary FIR/IIR filter design techniques – windows – bilinear and band transformations.
Pre-requisites: EE323.
Co-requisites: None.

Course Learning Outcomes:
With relation to ABET Student Outcomes (SOs: 1-7)
1. Analyze signals in the frequency domain. (1)
2. Solve problems using the Z-transform. (1)
3. Change the sampling rate of digital signals. (1)
4. Calculate the phase effect. (1)
5. Design linear phase filters. (2)
6. Build structures for discrete systems. (1,2)
7. Design IIR filters. (2)

Topics to be covered:
-   Discrete-Time Signals and Systems.
-   Z-Transform.
-   The Discrete Fourier Transform.
-   Sampling of Continuous-Time Signals.
-   Transform Analysis of Linear Time-Invariant Systems.
-   Structure for Discrete-Time Systems.
-   Filter Design Techniques.

Grading Policy:
The grading for the course are 60% coursework and 40% Final Exam. The coursework consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, homework, and projects for the remaining 20% that is modified by the course instructor.