Department: Electrical Engineerig

Subject: Signals and Systems

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| **Week** | **Topic** | **CLO** | **Taxonomy**  **Level** | **Specific Outcome** | **Contact Hours** |
| 1 | Continuous time and discrete time signals | 1 | C1 | Students will be able to analyze the difference between continuous and discrete time signals and system using different transform domain techniques. | 3 |
| 2 | Periodic signals, even and odd signals | 1 | C1 | Students will be able to define, use and cite some simple properties of these basic signals and can classify the signal as periodic and aperiodic. | 3 |
| 3 | Exponential and sinusoidal signals, power and energy of signals. | 1 | C2 | Students will be able to:   1. Classify signals according to a variety of criteria including energy, power and duration. 2. Competently manipulate complex-valued signals. | 3 |
| 4 | The unit impulse and unit step functions and properties of signals | 1 | C2 | Students will be able to:   1. Use common signal transformation operations and will be able to plot them as well. 2. Define state and identify system properties of linearity, time invariance, causality, memory and stability. | 3 |
| 5 | Linear time invariant (LTI) systems | 1 | C2 | Students will be able to formulate and solve differential equations describing linear, time invariant (LTI) systems, including both transient and steady-state responses. | 3 |
| 6 | Difference equation, causality, BIBO stability | 1 | C2 | Students will be able to:   1. Analyze and synthesize systems as a composite of sub-systems through series, parallel and feedback combinations. 2. Describe causality and stability of system with examples. | 3 |
| 7 | Convolution, bject: Signals and Systemsits properties and correlation | 2 | C1, C3, C4 | Students will be able to perform convolution of discrete time and continuous time signals. | 3 |