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| **Course Syllabus** | **EECS 3150 – Data Communications** |
| **Credits & Contact hours** | 3 credit hours & two 75-minute lecture contact hours per week |
| **Coordinator** | Dr. Jackson Carvalho |
| **Textbook** | William Stalling, "Data and Computer Communications", 10th Ed., Prentice-Hall, 2013. |
| **Course Information** | Analog and digital data transmission, transmission media, Modulation techniques. Data encoding, asynchronous and synchronous transmissions, USART, RS232-C, RS-449 standards. Data link configuration and control, error control, multiplexing and demultiplexing.<br><br>Prerequisites: EECS 1100 and EECS 3210<br><br>Co-requisite: MIME 4000<br><br>Required Course |
| **Students Learning Objectives (SLOs)** | The students will be able to<br>1. Define and understand the meaning and role of a protocol, the concept of layering, appreciate the role of the TCP/IP five layer model, and identify the major functions at each layer.<br>2. Describe how bits are represented as a signal on various physical media of data communication systems, which include A/D conversion, modulation, spread spectrum, synchronous and asynchronous communications, multiplexing, and framing.<br>3. Understand the various types of transmission media and their signal propagation characteristics associated with signal bandwidth.<br>4. Demonstrate understanding of the basic concepts of error detection, checking, and correction at the data link layer and application to flow control protocols.<br>5. Demonstrate understanding of the various switching methodologies, networking concepts, and associated IEEE 802 family of protocol standards.<br>6. Apply formulae to practical communication systems and analyze their performance in transmitting data signals.<br>7. Analyze data communication systems and its impact on individuals, organizations and society. |

**Topics**

1. Overview and Protocol Architecture, TCP/IP.
2. Data Transmission and Transmission Media.
3. Signal Encoding and Digital Data Communication Schemes.
4. Data Link Control Protocols and Multiplexing, Spread Spectrum.
5. Introduction to Circuit and Packet Switching.
6. Introduction to Asynchronous Transfer Mode.
7. Local Area Network Overviews and Introduction to High Speed LANs.