

<b>Course Title</b>	<b>Advanced Digital Communication</b>	
<b>Course Code</b>	<b>ET202</b>	
<b>Course Credit</b>	Lecture	: 4
	Practical	: 1
	Tutorial	: 0
	Total	: 5
<b>Course Objective</b>		
<p><b>The course objective is to let the student obtain :</b>          The analytical skills required to analyze and design basic digital communication systems in the physical layer, and the fundamental understanding of communication systems that may help them study advanced topics and consequently make significant contributions to the theory and the practice of digital communications.</p>		
<b>Detailed Syllabus</b>		
<b>Sr. No.</b>	<b>Name of chapter &amp; Details</b>	<b>Hours Allotted</b>
<b>SECTION - I</b>		
<b>1</b>	<b>Probability</b> Review of probability and Stochastic Processes.	<b>06</b>
<b>2</b>	<b>Channels and Systems</b> Communication through Band limited Channel, concept of parallel transmission, Multi channel and multi carrier CDMA system, fading multipath channel of DM	<b>15</b>
<b>3</b>	<b>Optimum Receivers</b> Optimum receiver for Additive White Gaussian Noise, BER calculation.	<b>09</b>
<b>SECTION – II</b>		
<b>4</b>	<b>Signal Design</b> Carrier and symbol synchronization, signal design for Band Limited Channels	<b>10</b>
<b>5</b>	<b>Signals and Systems</b> Characterization of Communication Signal and System. Geometric Representation of Signals and its use in communication	<b>11</b>
<b>6</b>	<b>Advanced Topics</b> Recent developments in Transmission and channel codes, Future trends in Digital communication	<b>07</b>

### **Instructional Method and Pedagogy:**

- Lectures will be conducted with the aid of multi-media projector, black board, Transperencies etc.
- Assignments and Exercise will be given to the students for each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.

### **Students Learning Outcomes:**

At the end of the course the students should able to

- Present the mathematical theory of signals and systems to understand modern digital communications equipment and techniques.
- Extend such concepts to transmission links in the presence of noise and other impairments.

### **Reference Books:**

1. Proakis J.J.,D Wozencraft J.M. and Jacobs I.M., Principles of Communication Engineering, John Wiley.
2. Carison A., Communication System, 3rd ., McGraw Hill.
3. Van Trees H.L., Detection Estimation and Modulation Theory, Vol. 1., Wiley.
4. Blahut R.F., Digital transmission of Information, Addison Wesley
5. Benedetto S., Biglieri E. and Castellari V., Digital Transmission Theory, Prentice Hall.