Central University of Jammu

Rahya-Suchani (Bagla) District Samba – 181143, Jammu (J&K)

Department of Electronics and Communication Engineering

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Analog Communication

Course Code: BEECA2C001

Course Title: Analog Communication

Semester: III

Credits: 04

Rationale

To provide a detailed treatment of analysis in communication system such as fourier transform, modulation and demodulation techniques.

Course Outlines

Contents	No. of Lectures
Unit - I Signals, Fourier Series, Complex Fourier Spectrum, Fourier Transform, Convolution, Parseval's Theorem, Linear Systems.	**08**
Unit - II Analog Modulation: Concept Of Modulation, Amplitude modulation: Double-Sideband Suppressed Carrier, Double-Sideband Full Carrier, Single Sideband and vestigial sideband modulation.	**08**
Unit -III Demodulation: Carrier Recovery in AM, coherent Demodulation, Envelope Detector, Square-Law Demodulator; Integrated Circuit Modulators And Demodulators, Superheterodyne Receiver.	**08**
Unit - IV Angle Modulation: Frequency Modulation, Phase Modulation, Narrow Band Angle Modulation, Wideband FM, Modulators, Demodulators.	**08**
Unit - V Broadcast FM And Stereo, QAM; Effects Of Noise in Analog Modulation Systems. Sampling, Pulse amplitude modulation, pulse width modulation, pulse position modulation, PCM.	**08**

Course Outcomes

Upon successful completion of this course, candidates will be able to:

- Able to understand basic concept of signals and Fourier transform.
- Able to learn amplitude modulation and angle modulation.
- Able to learn the concept of demodulation.
- Able to learn the concept of noise analysis, sampling, pulse width modulation, PCM.

Text Books

1. J. G. Proakis and M. Salehi, "Fundamentals of Communication Systems," Prentice Hall, 2004.
2. S. Haykin, "Communication Systems," John Wiley & Sons, 5th Ed., 2009.

Reference Books

1. B.P. Lathi and Z. Ding, "Modern Digital and Analog Communication Systems," 4th Ed., Oxford University Press, 2009.
2. Louis E. Frenzel, "Principles of Electonic Communication Systems," 3rd Ed., Tata McGraw-Hill, 2008.
3. Dennis Roddy and John Coolen, "Electronic Communications," 4th Ed., Pearson, 2008.

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Analog Communication Lab

Course Code: BEECA2C001P

Course Title: Analog Communication Lab

Semester: III

Credits: 01

Course Outlines

- To study and calculate the modulation index of AM wave
- To study the demodulation of AM wave and find out modulation frequency
- To study and observe frequency modulation
- Study of various FM receivers
- Study of modulation and detection of single side band modulation.
- To find the selectivity & sensitivity of the AM receiver
- To find and plot the fidelity of the AM receiver.
- Study of various AM receivers
- To study the sample and hold process.
- To study PAM and its demodulation
- To study PWM and its demodulation
- Study of 3 –band superhetrodyne receiver.
- Noise power spectral density measurement

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Python Programming

Course Code: BEECA2C002

Course Title: Python Programming

Semester: III

Credits: 03

Rationale

Python programming course is designed to provide students with a strong foundation in programming, emphasizing practical skills and real-world applications. Python is very easy to use, powerful, and versatile. It has become the language of choice for many developers. Python is easy for beginners to learn and widely utilized in various domain.

Course Outlines

Contents	No. of Lectures
Unit - I Introduction to Python Programming: Introduction to importance of IDEs like Spyder (Anaconda)/PyCharm and Python shell. Python keyword and Identifiers, Indentation, Comments, Data Types and associated Operations in Python: comparison, arithmetic, logical, Boolean, bitwise, assignment, Control statements: if-else, loops (for, while).	8
Unit – II Data Structures in Python: Lists: Basic list operations, replacing, inserting, removing an element; Searching and sorting a list, Methods of list objects, Using lists as Stacks and Queues, and nested list. Tuple and basic operations, Set and basic operations, Difference between list and tuple. Dictionary - adding and removing keys, accessing and replacing values, traversing dictionaries, String manipulations: subscript operator, indexing, slicing a string, conversion between various data types.	8
Unit -III File Handling - Reading keyboard input, opening and closing file, read, write and append mode, create and read a text file, Looping over a file object, writing on a file, splitting lines in a text file, Renaming and deleting files. Exception Handling - Exceptions, need for exception handling, raising an exception, try and except, try, except and else clause; try and finally.	8
Unit - IV Object Oriented Programming: Basics of Object oriented programming: Class	8