VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	ANALOG COMMUNICATION				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3

OBJECTIVES:

- Familiarize with the fundamentals of analog communication systems
- Familiarize with various techniques for analog modulation and demodulation of signals
- Distinguish the figure of merits of various analog modulation methods
- Develop the ability to classify and understand various functional blocks of radio transmitters and receivers
- Familiarize with basic techniques for generating and demodulating various pulse modulated signals

UNIT I

AMPLITUDE MODULATION: Introduction to communication system, need for modulation, Frequency Division Multiplexing, Amplitude Modulation, Definition, Time domain and frequency domain description, single tone modulation, power relations in AM waves, Generation of AM waves, square law Modulator, Switching modulator, Detection of AM Waves; Square law detector, Envelope detector, Review of noise and noise sources**,** Noise in Analog communication Systems, Noise in AM System.

UNIT II

DSB & SSB MODULATION: Double side band suppressed carrier modulators, time domain and frequency domain description, Generation of DSBSC Waves, Balanced Modulators, Ring Modulator, Coherent detection of DSB-SC Modulated waves, COSTAS Loop. Frequency domain description, Frequency discrimination method for generation of AM SSB Modulated Wave, Time domain description, Phase discrimination method for generating AM SSB Modulated waves. Demodulation of SSB Waves, Vestigial side band modulation: Frequency description, Generation of VSB Modulated wave, Time domain description, Envelope detection of a VSB Wave pulse Carrier, Noise in DSB& SSB System, Comparison of AM Techniques, Applications of different AM Systems.

UNIT III

ANGLE MODULATION: Basic concepts, Frequency Modulation: Single tone frequency modulation, Spectrum Analysis of Sinusoidal FM Wave, Narrow band FM, Wide band FM, Constant Average Power, Transmission bandwidth of FM Wave, Generation of FM Waves, Armstrong Method, Direct FM, Detection of FM Waves: Balanced Frequency discriminator, Phase locked loop, Noise in Angle Modulation Systems, Threshold effect in Angle Modulation System, Comparison of FM & AM.

UNIT IV

TRANSMITTERS & RECEIVERS: Radio Transmitter - Classification of Transmitter, AM Transmitter, Effect of feedback on performance of AM Transmitter, FM Transmitter – Variable reactance type and phase modulated FM Transmitter, frequency stability in FM Transmitter. **Radio Receiver** - Receiver Types - Tuned radio frequency receiver, Superheterodyne receiver, RF section and Characteristics - Frequency changing and tracking, Intermediate frequency, AGC, FM Receiver, Pre-emphasis & de-emphasis, Comparison with AM Receiver, Amplitude limiting.

UNIT V

PULSE MODULATION: Time Division Multiplexing, Types of Pulse modulation, PAM (Single polarity, double polarity) PWM: Generation & demodulation of PWM, PPM, Generation and demodulation of PPM, TDM Vs FDM.

Text Books:

1. Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Ed.,.
2. Principles of Communication Systems – H Taub & D. Schilling, Gautam Sahe, TMH, 2007 3rd Edition.

Reference Books:

1. Electronics & Communication System – George Kennedy and Bernard Davis, TMH2004.
2. Communication Systems– R.P. Singh, SP Sapre, Second Edition TMH,2007.
3. Fundamentals of Communication Systems - John G. Proakis, Masond, Salehi PEA,2006.
4. Electronic Communication systems – Tomasi,Pearson.
5. Communication Systems – B.P. Lathi, BS Publication,2006.

OUTCOMES:

After completion of the course, the student will be able to

- ✓ Differentiate various Analog modulation and demodulation schemes and their spectra characteristics
- ✓ Analyze noise characteristics of various analog modulation methods
- ✓ Analyze various functional blocks of radio transmitters and receivers
- ✓ Design various multiplexing techniques.
- ✓ Design various pulse analog modulation schemes.

DEPARTMENT OF BASIC SCIENCE

Year/Semester	II B.Tech-II Sem.	L	T	P	C
Regulation Year	R-20	3	-	-	0
Name of the Subject	**Critical Reading and Creative Writing**				
Branch	All Branches (except CSBS)				

COURSE OBJECTIVES:

The students will have the ability to

1. Understand how to identify, analyze, interpret and describe critical ideas, themes, and values in literary texts
2. List the elements of a Short Story
3. Apply critical and theoretical approaches to the reading and analysis of literary texts in multiple genres

UNIT – I:

Essentials of Good Writing

1. Focus, Development, Unity, Coherence and Correctness

2. Imagery
   A. Figurative Language- Simile, Metaphor, Personification, Hyperbole, Oxymoron, Paradox, Alliteration, Assonance
   B. Sensory details

3. Point of View

UNIT – II:

Elements of a Short story

1. Plot, Setting, Character, Theme

2. Analysis of given short stories: 2 stories

   A. Good Sees the Truth but Waits by Leo Tolstoy

   B. The Cop and the Anthem by O. Henry

UNIT – III

Prose Writing:

Reflective Writing – Personal Essay
Descriptive Writing: Person/Place/Thing

UNIT – IV

Reading Comprehension

Reading for facts, contextual vocabulary, tone and inference

UNIT – V:

Speech Analysis

A. Tryst with Destiny-

https://www.youtube.com/watch?v=lrEkYscgbqE

B. Stay Hungry, Stay Foolish –

https://www.youtube.com/watch?v=UF8uR6Z6KLc

References

The Cambridge Companion to Creative Writing (South Asian Edition)

Creative Writing: A Beginner's Manual (Paper Back Edition)

Teaching and Developing Reading Skills: Cambridge Handbooks for Language Teachers

Web References:

https://www.skillsyouneed.com/learn/critical-reading.html

https://englishforeveryone.org

http://sixminutes.dlugan.com/speech-evaluation-1-how-to-study-critique-speech/

http://www.homeofbob.com/literature/genre/fiction/ficElmnts.html

COURSE OUTCOMES:

Upon the completion of the course, the student will be able to:

1. Understand and explain the characteristics of a literary text
2. Critically analyze the quality of a Shorty Story
3 Produce essays like personal essay or descriptive essay applying the principles of good writing
4. Identify facts, themes and critical ideas in a passage
5. Articulate an awareness of the basic elements of a speech

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	CONTROL SYSTEMS				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3

OBJECTIVES:

- To introduce the concepts of open loop and closed loop systems, mathematical models of mechanical and electrical systems, and concepts of feedback
- To study the characteristics of the given system in terms of the transfer function and introducing various approaches to reduce the overall system for necessary analysis
- To develop the acquaintance in analyzing the system response in time-domain and frequency domain in terms of various performance indices
- To analyze the system in terms of absolute stability and relative stability by different approaches
- To design different control systems for different applications as per given specifications
- To introduce the concepts of state variable analysis, design and also the concepts of controllability and observability

UNIT-1

Introduction

System Control System, Open Loop Control System, Closed loop Control System, Different Examples

Mathematical models of Physical Systems

Differential equations of physical systems, Transfer functions, Block diagram Algebra, Signal flow graphs with illustrative examples

Effects of Feedback

Feedback Characteristics and its advantages

UNIT-2

Controller Components

DC Servomotor (Armature Controlled and Field Controlled) with necessary derivation for transfer function, AC Servomotor and its transfer function.

Time Response Analysis

Standard test Signals, Time response of first and second order systems, steady state errors and error constants, Effect of adding a zero to a system, Design specifications of second order systems, Performance indices

UNIT-3

Concepts of Stability and Algebraic Criteria

The concept of Stability, Necessary Conditions for Stability, Routh-Hurwitz Srability Criterion, Relative stability analysis

The Root Locus Technique

Introduction, The Root Locus concepts, Construction of Root Loci

UNIT-4

Frequency response analysis

Introduction to Frequency domain specifications-Bode diagrams- transfer function from the Bode Diagram-Phase margin and Gain margin-Stability Analysis from Bode Plots, Polar Plots, Nyquist Stability criterion. Effects of various controllers.

UNIT-5

State Space Analysis of LTI Systems

Concepts of state, state variables and state model, state space representation of transfer function, Diagonalization- Solving the time invariant state equations- State Transition Matrix and it‟s Properties – Concepts of Controllability and Observability.

Text Books:

1. J.Nagarath and M.Gopal, "**Control System Engineering,"** New Age International Publishers, Fifth Edition

Reference Books:

1. Katsuhiko Ogata, "Modern Control Engineering," Pearson, FifthEdition
2. S. Salivahanan, R. Rengaraj, and G. R. Venkata Krishnan, " Control Systems Engineering," Pearson, FirstImpression
3. Benjamin C. Kuo, FraridGolnaraghi, " Automatic Control Systems," Wiley Student Edition, Eigth Edition
4. PadmaRaju and Reddy , " Instrumentation and Control Systems ", McGrawHill Education,2016

OUTCOMES:

After completion of the course, the student will be able to

- ✓ Determine the mathematical modelling of physical systems
- ✓ Calculation of Time Domain Specification of first and second order systems and understand the effect of Controllers
- ✓ Investigate the stability of closed loop systems using Routh‟s stability criterion and root locus method.
- ✓ Find the stability of control systems using frequency response approaches.
- ✓ Analyze physical systems using state space approach.

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	EM WAVES AND TRANSMISSION LINES				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3

OBJECTIVES:

- Fundamentals of steady electric and magnetic fields using various laws
- The concept of static and time varying Maxwell equations and power flow using pointing theorem
- Wave characteristics in different media for normal and oblique incidence
- Various concepts of transmission lines and impedance measurements

UNIT I:

Electrostatics : Coulomb's Law, Electric Field Intensity & Electric Flux Density, Gauss Law and Applications, Electric work & Potential, Divergence, Maxwell's Equations for Electrostatic Fields, Convection and Conduction Currents, Dielectric Constant, Continuity Equation, Relaxation Time, Poisson's and Laplace's Equations; Conditions at a Boundary Surface : Dielectric-Dielectric and Dielectric-Conductor Interfaces.

UNIT II:

Magneto Statics : Biot-Savart Law, Magnetic Flux Density, Ampere's Circuital Law and Applications, Maxwell's two Equations for Magnetostatic Fields, Magnetic Scalar and Vector Potentials, forces in Magnetic field Illustrative Problems. Conditions at a Boundary Surface : Dielectric-Dielectric and Dielectric-Conductor Interfaces

Time Varying Fields : Induced emf, Faraday's Law, Types of Induced emf, Displacement Current Density, Inconsistency of Ampere's Law and Maxwell's Equations in point and Integral Forms and Word Statements.

UNIT III:

EM Wave Characteristics - I: Plane Waves – Definition, Wave Equations for Conducting , Perfect Dielectric Media, hormonically time varying fields, Relations Between E & H, Wave Propagation in Lossy dielectrics, lossless dielectrics, free space, wave propagation in good conductors, skin depth, Surface Impedance. Poynting Vector and Poynting Theorem – Applications, Polarization & Types.

UNIT IV:

EM Wave Characteristics – II: Reflection and Refraction of Plane Waves – Normal Incidences, for dielectric boundary and conducting boundary, Standing waves, SWR.
Reflection and Refraction of Plane Waves – Oblique Incidence, types-vertical polarisation and horizontal polarisation, Brewster Angle, Critical Angle and Total Internal Reflection.

UNIT V:

Transmission Lines : Types, Parameters, Transmission Line Equations, Infinite Line ,Primary & Secondary Constants, Phase and Group Velocities, Attenuation constant and Phase constant ,Lossless lines, distortion less lines, Telephone line Loading - Types of Loading. Illustrative Problems. Input Impedance, Relations for SC and OC Lines, Reflection Coefficient, VSWR. Low loss radio frequency lines and UHF Transmission lines, UHF Lines as Circuit Elements;

Impedance Transformations λ/4, λ /2, λ/8 Lines –. Quarter wave transformer, Short notes on Smith Chart and Stub Matching-single & double.

Text Books:

1. Elements of Electromagnetic – Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.
2. Electromagnetic Waves and Radiating Systems – E.C. Jordan and K.G. Balmain, PHI, 2 nd Edition, 2000.

Reference Books:

3 Engineering Electromagnetics – William H. Hayt Jr. and John A. Buck, TMH, 7th ed., 2006
4.Engineering Electromagnetics:Nathan Ida, Springer(India)Pvt.Ltd., New Delhi, 2nd ed.,2005.
5.Transmission Lines&Networks–UmeshSinha,S Prakashan (Tech.India pub New Delhi, 2001.
6.Electromagnetic Waves and Transmission Lines-U.A.Bakshi &A.V.Bakshi, Technical pub
7. Electromagnetic Waves and Transmission Lines-Y.Mallikharjuna Reddy,Universities press

OUTCOMES:

After completion of the course, the student will be able to

- ✓ To understand the concept of Electrostatic Fields
- ✓ To understand the concept of Magnetostatic Fields
- ✓ To gain knowledge of time varying fields and Maxwels equations
- ✓ To gain the knowledge in uniform plane wave in various media
- ✓ To understand reflection and refraction of EM waves at different type of interfaces.
- ✓ To understand the concept of Transmission lines.

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	PULSE AND DIGITAL CIRCUITS				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3

OBJECTIVES:

- To understand the concept of linear wave shaping circuits such as RC low pass and high pass with sinusoidal, step, pulse, square, ramp and exponential inputs.
- To understand the concept of non-linear wave shaping circuits such as clippers and clampers with their transfer characteristics.
- To study the design and analysis of various Multivibrators.
- To understand the functioning of different types of time-base Generators.
- To learn the working of logic families & Sampling Gates.

UNIT I

LINEAR WAVESHAPING: High pass, Low pass RC circuits, their response for sinusoidal, step, pulse, square, ramp and exponential inputs. RC network as differentiator and integrator; Attenuators and its applications in CRO probe.

UNIT II

NON-LINEAR WAVE SHAPING : Diode clippers, Transistor clippers, clipping at two independent levels, Transfer characteristics of clippers, Emitter coupled clipper; Clamping operation, clamping circuits using diode with different inputs, Clamping circuit theorem.

UNIT III

BISTABLE MULTIVIBRATOR: Analysis And Design of Fixed Bias, Self Bias Bistable Multivibrator, Commutating Capacitors, Triggering of Binary Circuits, Emitter Coupled Bistable Multivibrator (Schmitt Trigger).

MONOSTABLE MULTIVIBRATOR: Analysis and Design of Collector Coupled Monostable Multivibrator, Triggering of Monostable Multivibrator, Applications of Monostable Multivibrator.

ASTABLE MULTIVIBRATOR: Analysis and Design of Collector Coupled Astable Multivibrator, Astable Multivibrator as Voltage to Frequency Converter.

UNIT IV

VOLTAGE TIME BASE GENERATORS: General features of a time base signal, Methods of generating time base waveform, Exponential Sweep Circuits, Negative Resistance Switches, basic principles in Miller and Bootstrap time base generators, Transistor Miller time base generator and Transistor Bootstrap time base generator.

UNIT V

LOGIC FAMILIES & SAMPLING GATES: LOGIC FAMILIES: Diode Logic, Transistor Logic, Diode-Transistor Logic, Transistor-Transistor Logic, Emitter Coupled Logic.

SAMPLING GATES: Basic Operating Principles of Sampling Gates, Diode Unidirectional Sampling Gate and Two-Diode Bi-Directional Sampling Gate, Four-Diode gates,Reduction of Pedestal in Sampling Gates,Applications of Sampling Gates.

Text Books:

1. Pulse, Digital and Switching Waveforms - J. Millman and H. Taub, McGraw-Hill
2. Pulse and Digital Circuits – A. Anand Kumar, PHI, 2005.

Reference Books:

1. Solid State Pulse circuits - David A. Bell, PHI, 4th Edn., 2002.
2. Pulse & Digital Circuits by VenkataRao,K,Ramasudha K, ManmadhaRao,G., Pearson, 2010.

OUTCOMES:

After completion of the course, the student will be able to

- ✓ Design linear wave shaping circuits such as RC, RL and RLC and apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
- ✓ Design non-linear wave shaping circuits such as clippers and clampers and apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
- ✓ Design different Multivibrators and apply the fundamental concepts to various digital circuits.
- ✓ Design different time base generators and can be used in different display devices
- ✓ Utilize the logic families, sampling gates and non-sinusoidal signals in many experimental research areas.

II B. Tech. II-Semester

UNIVERSAL HUMAN VALUES: UNDERSTANDING HARMONY

L	T	P	C
3	0	0	3

Pre-requisites: None. Universal Human Values 1 (desirable)

OBJECTIVE:

The objective of the course is four fold:

- Development of a holistic perspective based on self-exploration about themselves (human being), family, society andnature/existence.
- Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
- Strengthening ofself-reflection.
- Development of commitment and courage toact.

COURSE TOPICS:

The course has 28 lectures and 14 practice sessions in 5 modules:

Module 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Purpose and motivation for the course, recapitulation from Universal HumanValues-I
2. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and ExperientialValidation- as the process forself-exploration
3. Continuous Happiness and Prosperity- A look at basic HumanAspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfillment of aspirations of every human being with their correctpriority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the currentscenario
6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility (living in relationship, harmony and co-existence) rather than as arbitrariness in choice based on liking-disliking

Module 2: Understanding Harmony in the Human Being - Harmony in Myself!

7. Understanding human being as a co-existence of the sentient 'I' and the material'Body'
8. Understanding the needs of Self ('I') and 'Body' - happiness and physicalfacility

9. Understanding the Body as an instrument of 'I' (I being the doer, seer andenjoyer)
10. Understanding the characteristics and activities of 'I' and harmony in'I'
11. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity indetail
12. Programs to ensureSanyam and Health.

Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease

Module 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

13. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values ofrelationship
14. Understanding the meaning of Trust; Difference between intention andcompetence
15. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values inrelationship
16. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive HumanGoals
17. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to worldfamily.

Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship, goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives

Module 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

18. Understanding the harmony in theNature
19. Interconnectedness and mutual fulfilment among the four orders of nature-recyclability and self- regulation innature
20. Understanding Existence as Co-existence of mutually interacting units in all-pervasivespace
21. Holistic perception of harmony at all levels ofexistence.

Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.

Module 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

22. Natural acceptance of humanvalues
23. Definitiveness of Ethical HumanConduct

24. Basis for Humanistic Education, Humanistic Constitution and Humanistic UniversalOrder
25. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people- friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above productionsystems.
26. Case studies of typical holistic technologies, management models and production systems
27. Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions andorganizations

Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. to discuss the conduct as an engineer or scientist etc.

TEXTBOOK

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi,2010

REFERENCEBOOKS

1. JeevanVidya: EkParichaya, ANagaraj, JeevanVidyaPrakashan, Amarkantak,1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi,2004.
3. The Story of Stuff(Book).
4. The Story of My Experiments with Truth - by Mohandas KaramchandGandhi
5. Small is Beautiful - E. FSchumacher.
6. Slow is Beautiful - CecileAndrews
7. Economy of Permanence - J CKumarappa
8. Bharat Mein Angreji Raj -PanditSunderlal
9. Rediscovering India - byDharampal
10. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
11. India Wins Freedom - Maulana Abdul KalamAzad
12. Vivekananda - Romain Rolland(English)
13. Gandhi - Romain Rolland(English)

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	ANALOG COMMUNICATIONS LAB				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	0	0	3	1.5

OBJECTIVES:

- To give experimental exposure about analog modulation techniques such as linear and non linear modulation techniques.
- To give experimental exposure about pluse modulation techniques such as PAM, PWM and PPM.

List of Experiments: (Minimum of Ten Experiments has to be performed)

1. Amplitude Modulation - Modulation & Demodulation (Hardware & Software)
2. AM - DSB SC - Modulation & Demodulation (Hardware & Software)
3. Spectrum Analysis of Modulated signal using Spectrum Analyser.
4. Diode Detector.
5. Pre-emphasis & De-emphasis.
6. Frequency Modulation - Modulation & Demodulation (Hardware & Software)
7. AGC Circuits.
8. Sampling Theorem. (Hardware & Software)
9. Pulse Amplitude Modulation - Modulation & Demodulation (Hardware & Software)
10. PWM , PPM - Modulation & Demodulation
11. PLL

Equipment required:

1 RPS - 0 – 30 V
2 CRO - 0 – 20 M Hz.
3 Function Generators - 0 – 1 M Hz
4 Components
5 Multi Meters

Outcomes:

- Experiment with different Analog modulators and demodulators.
- Make use of functionalities of various components used in analog transmitters and receivers.
- Analyze Analog modulated signals with simulation tool.
- Apply the theoretical concepts for designing of analog modulators and demodulators with Simulink.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	PULSE AND DIGITAL CIRCUITS LAB				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	0	0	3	1.5

OBJECTIVES:

COB 1: To impart knowledge on the RC linear wave shaping circuits.
COB 2: To design non-linear wave shaping circuits.
COB 3: To understand the switching characteristics of devices.
COB 4: To verify the response of pulse generator circuits such as multi vibrators, time base generators.

List of Experiments: (Minimum of Ten Experiments has to be performed)

1.Linear wave shaping.

2. Non Linear wave shaping – Clippers.

3. Non Linear wave shaping – Clampers.

4. Transistor as a switch.

5. Astable Multivibrator.

6. Monostable Multivibrator.

7. Bistable Multivibrator.

8. UJT Relaxation Oscillator.

9. Schmitt Trigger.

10. Bootstrap sweep circuit.

11. Attenuators

12. Sampling Gates.

Equipment required:

1 RPS - 0 – 30 V
2 CRO - 0 – 20 M Hz.
3 Function Generators - 0 – 1 M Hz
4 Components
5 Multi Meters

Outcomes:

At the end of the Course, Student will be able to:
CO 1: Build different types of linear and non-linear wave shaping circuits.
CO 2: Demonstrate the switching characteristics of devices.
CO 3: Classify different multi vibrators based on characteristics.
CO 4: Explain the features of time base signal using time base generators.

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM (A)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Name	Signals and Systems Lab				
Year/Semester	II B.Tech/II Sem	L	T	P	C
Regulation Year	2020-21	0	0	3	1.5

OBJECTIVES:

- To provide background and fundamentals of MATLAB tool for the analysis and processing of signals and to generate various continuous and discrete time signals.
- To provide an overview of signal transmission through linear systems, convolution and correlation of signals and sampling.
- To understand the concept and importance of Fourier and Z-Transforms

List of Experiments: (Minimum of Ten Experiments has to be performed)

1. Operations on Matrices
2. Generation of signals
3. Operation on signals
4. Convolution
5. Auto correlation and Cross correlation between signals
6. Finding Fourier Transform for a given signal
7. Gibbs Phenomenon
8. Generation of Gaussian function.
9. Verification of Weiner-Khinchine Relations
10. Pole- Zero Plots in S-Plane and Z-Plane

OUTCOMES:

After completion of the course, the student will be able to

- **Analyze** the generation Various Signals and Sequences in MATLAB, including the operations on Signals and Sequences.
- **Analyze** the Fourier Transform of a given signal and plotting its magnitude and phase spectrum and also plot Pole-Zero Maps in Z-Plane.
- **Verify** Wiener Khinchine relations