Department Of Electronics and Communication Department

21 Scheme (3rd and 4th semester)

3rd Semester

21EC31

To solve ordinary differential equations using Laplace transform.
Demonstrate the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory
To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
To solve mathematical models represented by initial or boundary value problems involving partial differential equations
Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

21EC32

Simplify Boolean functions using K-map and Quine-McCluskey minimization technique
Analyze and design for combinational logic circuits.
Analyze the concepts of Flip Flops (SR, D, T and JK) and to design the synchronous sequential circuits using Flip Flops
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Model Combinational circuits (adders, subtractors, multiplexers) and sequential circuits using Verilog descriptions

21EC33

Understand the basics of Linear Algebra
Analyse different types of signals and systems
Analyse the properties of discrete-time signals & systems
Analyse discrete time signals & systems using Z transforms

21EC34

Understand the characteristics of BJTs and FETs
Design and Analyze BJT and FET amplifier circuiits
Analyze feedback topologies

Describe the functioning of Linear Ics
Analyze the characterisctics of power electronic device components

21EC381

Demonstrate the truth table of various expressions and combinational circuits using logic gates.
Design various combinational circuits such as adders, subtractors, comparators, multiplexers and code converters.
Construct flips-flops, counters and shift registers
Design and implement synchronous counters.

21ECL35

Design and analyze the BJT/FET amplifier and oscillator circuits.
Design and test Opamp circuits to realize the mathematical computations, DAC and precision rectifiers
Design and test the combinational logic circuits for the given specifications
Test the sequential logic circuits for the given functionality
Demonstrate the basic electronic circuit experiments using SCR and 555 timer.

4th Semester

21EC41

Recall the basic laws and definitions (with mathematical representations) in Electric and Magnetic fields.
Apply the basic laws of Electric and Magnetic fields to arrive at Divergence Theorem, Current continuity Equation, Curl, Stokes' theorem.
Apply Electric and Magnetic field concepts to arrive at Maxwell's equations, Electromagnetic wave equations and Poynting's theorem
Recall the definitions related to Random variables and Random Processes
Model the Random events in the Communication set-up and determine useful statistical parameters

21EC42

Determine the spectrum of finite duration sequence using DFT techniques
Compute DFT of real and complex discrete time signals by using FFT algorithms
Design FIR Filters using Windowing Techniques
Design of IIR filter using Bilinear Transformation method

Understand DSP architecture and design digital filters using DSP processors

21EC43

Analyze the network by using Network theorems and network reduction techniques
Understand two port network parameters and Analyze Network response for different inputs using Laplace Transforms
Learn the types of control systems and Apply reduction techniques to determine the transfer function of a Control system
Analyze time domain behavior of 1st and 2ndorder systems and Analyze the stability of the system using different techniques in time domain
Analyze the stability of a system using frequency domain techniques and Analyze the electrical system using state variable technique

21EC44

"Understand the amplitude and frequency modulation techniques and performtime and frequency domain transformations."
"Identify the schemes for amplitude and frequency modulation and demodulation of analog signals and compare the performance
Characterize the influence of channel noise on analog modulated signals.
Demonstrate the characteristics of pulse amplitude modulation, pulse positionmodulation and pulse code modulation systems
Illustration of digital formatting representations used for Multiplexers

21EC481

Write C programs in 8051 for solving simple problems that manipulate input data using differentinstructions of 8051 C.
Develop testing and experimental procedures on 8051 Microcontroller, analyze their operation under different cases
Develop programs for 8051 Microcontroller to implement real world problems.
Design and Develop Mini projects

21EC45

Understand the basic biological concepts via relevant industrial applications and case studies.
Evaluate the principles of design and development, for exploring novel bioengineering projects

Verify the concepts of biometrics for specific requirements.
Think critically towards exploring innovative bio based solutions for socially relevant problems

21ECL46

Model an analog communication system signal transmission and reception.
Realize the electronic circuits to perform analog and pulse modulations and demodulations
Verify the sampling theorem and relate the signal and its spectrum before and after sampling
Understand the process of PCM and delta modulations
Understand the PLL operation