ST. FRANCIS INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

COURSE OUTCOMES FOR SECOND YEAR (SEM III)

R-2019 C SCHEME

Course Code	Course Name
ECC301	Engineering Mathematics-III
ECC302	Electronic Devices and Circuits
ECC303	Digital System Design
ECC304	Network Theory
ECC305	Electronic Instrumentation & Control Systems
ECL301	Electronic Devices and Circuits Lab
ECL302	Digital System Design Lab
ECL303	Electronic Instrumentation & Control Systems Lab
ECL304	Skill Lab: C++ and Java Programming
ECM301	Mini Project 1A: Analog & Digital Circuit Design based Projects

Course Outcomes

ECC301-Engineering Mathematics-III

CO1   Evaluate Laplace transform and apply it to solve the real integrals in engineering problems.

CO2   Evaluate Inverse Laplace Transform and solve ordinary differential equation with constant coefficient, integral equation.

CO3   Expand the periodic function by using Fourier series for real life problems and complex engineering problems.

CO4   Evaluate analytic functions, their differentiability and analyticity, Cauchy-Riemann equations, harmonic functions

CO5   Use matrix theory to solve the engineering problems.

CO6   Apply the concepts of vector calculus in real life problems.

ECC302-Electronic Devices and Circuits

CO1   Know functionality and applications of various electronic devices.

CO2   Explain working of various electronics devices with the help of V-I characteristics.

CO3   Derive expressions for performance parameters of BJT and MOSFET circuits.

CO4   Evaluate performance of Electronic circuits (BJT and MOSFET based).

CO5   Select appropriate circuit for given application.

CO6   Design electronic circuit (BJT, MOSFET based) circuits for given specifications

ECC303- Digital System Design

CO1   Utilize number system representations and perform their inter-conversions.

CO2   Classify types of digital logic, digital circuits and logic families.

CO3   Analyze, design and implement combinational logic circuits.

CO4   Analyze, design and implement sequential logic circuits.

CO5   Classify different types of memories and PLDs.

CO6   Simulate and implement basic combinational and sequential circuits using VHDL/Verilog.

ECC304-Network Theory

CO1   Apply their knowledge in analyzing circuits by using network theorems.

CO2   Apply the time and frequency method of analysis.

CO3   Evaluate circuit using graph theory.

CO4   Find the various parameters of two port network.

CO5   Apply network topology for analyzing the circuit.

CO6   Synthesize the network using passive elements.

ECC305-Electronic Instrumentation & Control Systems

CO1   Identify various sensors, transducers and their brief performance specification.

CO2   Understand the principle of working of various transducer used to measure, temperature, displacement, level, pressure and their application in industry

CO3   Determine the models of physical systems in forms suitable for use in the analysis and design of control systems.

CO4   Obtain the transfer functions for a given Control system.

CO5   Understand the analysis of systems in time domain and frequency domain.

CO6   Predict stability of given system using appropriate criteria.

ECL301 Electronic Devices & Circuits Lab

CO1   Know various equipment's, electronics devices and components, and measuring instruments used to perform laboratory work.

CO2   Explain functionality of various equipment's, electronics devices and components and measuring instruments used to perform laboratory work.

CO3   Connect various equipment's, devices, components and measuring devices using bread board as per the circuit diagram for experiment to be performed.

CO4   Perform experiment to gather appropriate data.

CO5   Analyze data obtained from experiment to relate theory with experiment results.

CO6   Prepare laboratory report (Journal) to summarize the outcome each experiment.

ECL302 Digital System Design Lab

CO1   Utilize number system representations and implement their inter-conversions.

CO2   Identify and verify the working of Digital ICs as basic building blocks of digital systems

CO3   Design, simulate and implement combinational circuits.

CO4   Identify, verify and simulate the working of various types of flip flops and implement their interconversions.

CO5   Design, simulate and implement basic sequential circuits.

CO6   Implement simulation code for basic logic gates, combinational and sequential circuits using VHDL/Verilog.

ECL303 Electronic Instrumentation & Control Systems Lab.

CO1   Plot and validate the performance characteristics of displacement transducers.

CO2   Plot and Validate the characteristics of various temperature, pressure and level transducers.

CO3   Plot frequency response of first-order electrical system.

CO4   Plot time response of second-order electrical system and calculate the steady-state error.

CO5   Validate the effect of damping factor on the response of second order system.

CO6   Inspect the frequency response specifications of systems by using bode-plot, Polar plot, Nyquist-plot techniques, and comment on the stability of system

ECL304 Skill Lab: C++ and Java Programming

CO1   Describe the basic principles of OOP.

CO2   Design and apply OOP principles for effective programming.

CO3   Develop programming applications using OOP language.

CO4   Implement different programming applications using packaging.

CO5   Analyze the strength of OOP.

CO6   Percept the Utility and applicability of OOP.

ECM301 Mini Project 1A: Analog & Digital Circuit Design based Projects

CO1   Understand the basics of electronic devices and circuits, electrical circuits and digital systems

CO2   Improve the knowledge of electronics hardware, tools & Equipment.

CO3   Create the electronics circuit for a particular application/experiment.

CO4   Design and simulate the circuits by putting together the analog and digital components using different simulation software's

CO5   Learn the technique of soldering and circuit implementation on general purpose printed circuit board (GPP).

CO6   Analysis of hardware fault (Fault detection and correction)