Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ANNA UNIVERSITY REGULATIONS: 2021

LIST OF COURSES

FIRST YEAR COURSES			
S.NO	**NAAC CODE**	**SUBJECT CODE**	**SUBJECT NAME**
01	C101	HS3152	PROFESSIONAL ENGLISH - I
02	C102	MA3151	MATRICES AND CALCULUS
03	C103	PH3151	ENGINEERING PHYSICS
04	C104	CY3151	ENGINEERING CHEMISTRY
05	C105	GE3151	PROBLEM SOLVING AND PYTHON PROGRAMMING
06	C107	GE3171	ROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY
07	C108	BS3171	PHYSICS AND CHEMISTRY LABORATORY - (PHYSICS LABORATORY)
08	C108	BS3171	PHYSICS AND CHEMISTRY LABORATORY - (CHEMISTRY LABORATORY)
09	C109	GE3172	ENGLISH LABORATORY
10	C110	HS3252	PROFESSIONAL ENGLISH - II
11	C111	MA3251	STATISTICS AND NUMERICAL METHODS
12	C112	PH3254	PHYSICS FOR ELECTRONICS ENGINEERING
13	C113	PH3254	PHYSICS FOR ELECTRONICS ENGINEERING
14	C114	GE3251	ENGINEERING GRAPHICS
15	C115	EC3251	CIRCUIT ANALYSIS
16	C117	GE3271	ENGINEERING PRACTICES LABORATORY
17	C118	EC3271	CIRCUIT ANALYSIS LABORATORY
18	C119	GE3272	COMMUNICATION LABORATORY / FOREIGN LANGUAGE

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

			SECOND YEAR COURSES
19	C201	MA3355	RANDOM PROCESSES AND LINEAR ALGEBRA
20	C202	CS3353	C PROGRAMMING AND DATA STRUCTURES
21	C203	EC3354	SIGNALS AND SYSTEMS
22	C204	EC3353	ELECTRONIC DEVICES AND CIRCUITS
23	C205	EC3351	CONTROL SYSTEMS
24	C206	EC3352	DIGITAL SYSTEMS DESIGN
25	C207	EC3361	ELECTRONIC DEVICES AND CIRCUITS LABORATORY
26	C208	CS3362	C PROGRAMMING AND DATA STRUCTURES LABORATORY
27	C209	GE3361	PROFESSIONAL DEVELOPMENT
28	C210	EC3452	ELECTRO MAGNETIC FIELDS
29	C211	EC3401	NETWORKS AND SECURITY
30	C212	EC3451	LINEAR INTEGRATED CIRCUITS
31	C213	EC3492	DIGITAL SIGNAL PROCESSING
32	C214	EC3491	COMMUNICATION SYSTEMS
33	C215	GE3451	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY
34	C216	EC3461	COMMUNICATION SYSTEMS LABORATORY
35	C217	EC3462	LINEAR INTEGRATED CIRCUITS LABORATORY
			THIRD YEAR COURSES
36	C301	EC3501	WIRELESS COMMUNICATION
37	C302	EC3552	VLSI AND CHIP DESIGN
38	C303	EC3551	TRANSMISSION LINES AND RF SYSTEMS
39	C304	CEC366	IMAGE PROCESSING
40	C305	CEC334	ANALOG IC DESIGN
41	C306	CEC352	SATELLITE COMMUNICATION
42	C307	MX3084	DISASTER RISK REDUCTION AND MANAGEMENT
48	C308	ET3491	EMBEDDED SYSTEMS AND IOT DESIGN
49	C309	CS3491	ARTIFICIAL INTELLIGENCE AND MACHINE

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

			LEARNING
50	C310	OEE351	RENEWABLE ENERGY SYSTEM
51	C311	CEC364	WIRELESS BROAD BAND NETWORKS
52	C312	CEC345	OPTICAL COMMUNICATION & NETWORKS
53	C313	CEC362	VLSI TESTING AND DESIGN FOR TESTABILITY
54	C314	EC3561	VLSI LABORATORY
FINAL YEAR COURSES			
55	C401	GE3791	HUMAN VALUES AND ETHICS
56	C402	CME365	RENEWABLE ENERGY TECHNOLOGIES
57	C403	OBT355	BIOTECHNOLOGY FOR WASTE MANAGEMENT
58	C404	GE3751	PRINCIPLES OF MANAGEMENT
59	C405	CS3711	SUMMER INTERNSHIP
60	C406	CS3811	PROJECT WORK

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ANNA UNIVERSITY REGULATIONS : 2021

FIRST YEAR COURSES (I & II SEMESTER)

Course Outcomes (COs)

C101	HS3152	Professional English - I

C101.1	To use appropriate words in a professional context
C101.2	To gain understanding of basic grammatic structures and use them in right context
C101.3	To read and infer the denotative and connotative meanings of technical texts
C101.4	To write definitions, descriptions, narrations and essays on various topics

C102	MA3151	Matrices and Calculus

C102.1	Use the matrix algebra methods for solving practical problems.
C102.2	Apply differential calculus tools in solving various application problems.
C102.3	Able to use differential calculus ideas on several variable functions.
C102.4	Apply different methods of integration in solving practical problems.
C102.5	Apply multiple integral ideas in solving areas, volumes and other practical problems.

Shree Sathyam

College of Engineering and Technology

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C103	PH3151	Engineering Physics

C103.1	Understand the importance of mechanics.
C103.2	Express their knowledge in electromagnetic waves.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

C104	CY3151	Engineering Chemistry

C104.1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water
C104.2	To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.
C104.3	To apply the knowledge of phase rule and composites for material selection requirements.
C104.4	To recommend suitable fuels for engineering processes and applications.
C104.5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C105	GE3151	Problem Solving and Python Programming

C105.1	Develop algorithmic solutions to simple computational problems
C105.2	Develop and execute simple Python programs.
C105.3	Write simple Python programs using conditionals and looping for solving problems.
C105.4	Decompose a Python program into functions
C105.5	Represent compound data using Python lists, tuples, dictionaries etc.
C105.6	Read and write data from/to files in Python programs.

C107	GE3171	Problem Solving and Python Programming Laboratory

C107.1	Develop algorithmic solutions to simple computational problems
C107.2	Develop and execute simple Python programs.
C107.3	Implement programs in Python using conditionals and loops for solving problems.
C107.4	Deploy functions to decompose a Python program.
C107.5	Process compound data using Python data structures.
C107.6	Utilize Python packages in developing software applications.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C108	BS3171	Physics and Chemistry Laboratory

C108.1	Understand the functioning of various physics laboratory equipment.
C108.2	Use graphical models to analyze laboratory data.
C108.3	Use mathematical models as a medium for quantitative reasoning and describing physical reality
C108.4	Access, process and analyze scientific information.
C108.5	Solve problems individually and collaboratively.

C108.1	To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.
C108.2	To determine the amount of metal ions through volumetric and spectroscopic techniques.
C108.3	To analyse and determine the composition of alloys.
C108.4	To learn simple method of synthesis of nanoparticles.
C108.5	To quantitatively analyse the impurities in solution by electroanalytical techniques.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C109	GE3172	English Laboratory

C109.1	To listen to and comprehend general as well as complex academic information.
C109.2	To listen to and understand different points of view in a discussion.
C109.3	To speak fluently and accurately in formal and informal communicative contexts.
C109.4	To describe products and processes and explain their uses and purposes clearly and accurately.
C109.5	To express their opinions effectively in both formal and informal discussions.

C110	HS3252	Professional English - II

C110.1	To compare and contrast products and ideas in technical texts.
C110.2	To identify and report cause and effects in events, industrial processes through technical texts.
C110.3	To analyse problems in order to arrive at feasible solutions and communicate them in the written format.
C110.4	To present their ideas and opinions in a planned and logical manner.
C110.5	To draft effective resumes in the context of job search.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C111	MA3251	Statistics and Numerical Methods

C111.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C111.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C111.3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
C111.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
C111.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

C112	PH3254	Physics for Electronics Engineering

C112.1	Know basics of crystallography and its importance for varied materials properties
C112.2	Gain knowledge on the electrical and magnetic properties of materials and their applications
C112.3	Understand clearly of semiconductor physics and functioning of semiconductor devices
C112.4	Understand the optical properties of materials and working principles of various optical devices
C112.5	Appreciate the importance of nanotechnology and nano devices.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C113	BE3254	Electrical and Instrumentation Engineering

C113.1	Explain the working principle of electrical machines.
C113.2	Analyze the output characterizes of electrical machines.
C113.3	Choose the appropriate electrical machines for various applications.
C113.4	Explain the types and operating principles of measuring instruments.
C113.5	Explain the basic power system structure and protection schemes.

C114	GE3251	Engineering Graphics

C114.1	Use BIS conventions and specifications for engineering drawing.
C114.2	Construct the conic curves, involutes and cycloid.
C114.3	Solve practical problems involving projection of lines.
C114.4	Draw the orthographic, isometric and perspective projections of simple solids.
C114.5	Draw the development of simple solids.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C115	EC3251	Circuit Analysis

C115.1	Apply the basic concepts of circuit analysis such as Kirchoff's laws, mesh current andnode voltage method for analysis of DC and AC circuits.
C115.2	Apply suitable network theorems and analyze AC and DC circuits.
C115.3	Analyze steady state response of any R, L and C circuits.
C115.4	Analyze the transient response for any RC, RL and RLC circuits and frequency responseof parallel and series resonance circuits.
C115.5	Analyze the coupled circuits and network topologies.

C117	GE3271	Engineering Practices Laboratory

C117.1	Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.
C117.2	Wire various electrical joints in common household electrical wire work.
C117.3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.
C117.4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C118	EC3271	Circuits Analysis Laboratory

C118.1	Design RL and RC circuits.
C118.2	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems.

C119	GE3272	Communication Laboratory / Foreign Language

C119.1	Speak effectively in group discussions held in a formal / semi formal contexts.
C119.2	Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions.
C119.3	Write emails, letters and effective job applications.
C119.4	Write critical reports to convey data and information with clarity and precision.
C119.5	Give appropriate instructions and recommendations for safe execution of tasks.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ANNA UNIVERSITY REGULATIONS: 2021

SECOND YEAR COURSES (III & IV SEMESTER)

Course Outcomes (Cos)

C201	MA3355	Random Processes And Linear Algebra

C201.1	Explain the fundamental concepts of advanced algebra and their role in modernmathematics and applied contexts.
C201.2	Demonstrate accurate and efficient use of advanced algebraic techniques.
C201.3	Apply the concept of random processes in engineering disciplines.
C201.4	Understand the fundamental concepts of probability with a thorough knowledge of standarddistributions that can describe certain real-life phenomenon.
C201.5	Understand the basic concepts of one and two dimensional random variables and applythem to model engineering problems.

C202	CS3353	C Programming and Data Structures

C202.1	Develop C programs for any real world/technical application.
C202.2	Apply advanced features of C in solving problems.
C202.3	Write functions to implement linear and non–linear data structure operations.
C202.4	Suggest and use appropriate linear/non–linear data structure operations for solving a givenproblem.
C202.5	Appropriately use sort and search algorithms for a given application.
C202.6	Apply appropriate hash functions that result in a collision free scenario for data storage andretrieval.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C203	EC3354	Signals and Systems

C203.1	Determine if a given system is linear/causal/stable
C203.2	Determine the frequency components present in a deterministic signal
C203.3	Characterize continuous LTI systems in the time domain and frequency domain
C203.4	Characterize discrete LTI systems in the time domain and frequency domain
C203.5	Compute the output of an LTI system in the time and frequency domains

C204	EC3353	Electronic Devices and Circuits

C204.1	Explain the structure and working operation of basic electronic devices.
C204.2	Design and analyze amplifiers.
C204.3	Analyze frequency response of BJT and MOSFET amplifiers.
C204.4	Design and analyze feedback amplifiers and oscillator principles..
C204.5	Design and analyze power amplifiers and supply circuits.

Shree Sathyam

College of Engineering and Technology

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C205	EC3351	Control Systems

C205.1	Compute the transfer function of different physical systems.
C205.2	Analyse the time domain specification and calculate the steady state error.
C205.3	Illustrate the frequency response characteristics of open loop and closed loop system response.
C205.4	Analyse the stability using Routh and root locus techniques.
C205.5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system.

C206	EC3352	Digital Systems Design

C206.1	Use Boolean algebra and simplification procedures relevant to digital logic.
C206.2	Design various combinational digital circuits using logic gates.
C206.3	Analyse and design synchronous sequential circuits.
C206.4	Analyse and design asynchronous sequential circuits.
C206.5	Build logic gates and use programmable devices

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C207	EC3361	Electronic Devices and Circuits Laboratory

C207.1	Characteristics of PN Junction Diode and Zener diode.
C207.2	Design and Testing of BJT and MOSFET amplifiers.
C207.3	Operation of power amplifiers.

C208	CS3362	C Programming and Data Structures Laboratory

C208.1	Use different constructs of C and develop applications
C208.2	Write functions to implement linear and non-linear data structure operations
C208.3	Suggest and use the appropriate linear / non-linear data structure operations for a givenproblem
C208.4	Apply appropriate hash functions that result in a collision free scenario for data storage andRetrieval
C208.5	Implement Sorting and searching algorithms for a given application.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C209	GE3361	Professional Development

C209.1	Use MS Word to create quality documents, by structuring and organizing content for their dayto day technical and academic requirements
C209.2	Use MS EXCEL to perform data operations and analytics, record, retrieve data as perrequirements and visualize data for ease of understanding
C209.3	Use MS EXCEL to perform data operations and analytics, record, retrieve data as perrequirements and visualize data for ease of understanding

C210	EC3452	Electromagnetic Fields

C210.1	Relate the fundamentals of vector, coordinate system to electromagnetic concepts
C210.2	Analyze the characteristics of Electrostatic field.
C210.3	Interpret the concepts of Electric field in material space and solve the boundary conditions.
C210.4	Explain the concepts and characteristics of Magneto Static field in material space and solve boundary conditions.
C210.5	Determine the significance of time varying fields.

SHREE Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C211	EC3401	Networks And Security

C211.1	Explain the Network Models, layers and functions.
C211.2	Categorize and classify the routing protocols.
C211.3	List the functions of the transport and application layer.
C211.4	Evaluate and choose the network security mechanisms.
C211.5	Discuss the hardware security attacks and countermeasures.

C212	EC3451	Linear Integrated Circuits

C212.1	Design linear and nonlinear applications of OP – AM
C212.2	Design applications using analog multiplier and PLL
C212.3	Design ADC and DAC using OP– AMPS
C212.4	Generate waveforms using OP – AMP Circuits
C212.5	Analyze special function ICs

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C213	EC3492	Digital Signal Processing

C213.1	Apply DFT for the analysis of digital signals and systems
C213.2	Design IIR and FIR filters
C213.3	Characterize the effects of finite precision representation on digital filters
C213.4	Design multirate filters
C213.5	Apply adaptive filters appropriately in communication systems

C214	EC3491	Communication Systems

C214.1	Gain knowledge in amplitude modulation techniques
C214.2	Understand the concepts of Random Process to the design of communication systems
C214.3	Gain knowledge in digital techniques
C214.4	Gain knowledge in sampling and quantization
C214.5	Understand the importance of demodulation techniques

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C215	GE3451	Environmental Sciences And Sustainability

C215.1	To recognize and understand the functions of environment, ecosystems and biodiversity andtheir conservation.
C215.2	To identify the causes, effects of environmental pollution and natural disasters and contributeto the preventive measures in the society.
C215.3	To identify and apply the understanding of renewable and non-renewable resources andcontribute to the sustainable measures to preserve them for future generations.
C215.4	To recognize the different goals of sustainable development and apply them for suitabletechnological advancement and societal development.
C215.5	To demonstrate the knowledge of sustainability practices and identify green materials, energycycles and the role of sustainable urbanization.

C216	EC3461	Communication Systems Laboratory

C216.1	Design AM, FM & Digital Modulators for specific applications.
C216.2	Compute the sampling frequency for digital modulation.
C216.3	Simulate & validate the various functional modules of Communication system.
C216.4	Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes.
C216.5	Apply various channel coding schemes & demonstrate their capabilities towards theimprovement of the noise performance of Communication system.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C217	EC3462	Linear Integrated Circuits Laboratory

C217.1	Analyze various types of feedback amplifiers
C217.2	Design oscillators, tuned amplifiers, wave-shaping circuits and multi vibrators
C217.3	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shapingcircuits and multi vibrators, filters using SPICE Tool.
C217.4	Design amplifiers, oscillators, D-A converters using operational amplifiers.
C217.5	Design filters using op-amp and perform an experiment on frequency response

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ANNA UNIVERSITY REGULATIONS: 2021

THIRD YEAR COURSES (V & VI SEMESTER)

Course Outcomes (Cos)

C301	EC3501	Wireless Communication

C301.1	Understand The Concept And Design Of a Cellular System.
C301.2	Understand Mobile Radio Propagation And Various Digital Modulation Techniques.
C301.3	Understand The Concepts Of Multiple Access Techniques And Wireless Networks
C301.4	Characterize a wireless channel and evolve the system design specifications
C301.5	Design a cellular system based on resource availability and traffic demands.

C302	EC3552	VLSI and Chip Design

C302.1	In depth knowledge of MOS technology
C302.2	Understand Combinational Logic Circuits and Design Principles
C302.3	Understand Sequential Logic Circuits and Clocking Strategies
C302.4	Understand Memory architecture and building blocks
C302.5	Understand the ASIC Design Process and Testing.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C303	EC3551	Transmission Lines and RF Systems

C303.1	Explain the characteristics of transmission lines and its losses.
C303.2	Calculate the standing wave ratio and input impedance in high frequency transmission lines.
C303.3	Analyze impedance matching by stubs using Smith Charts.
C303.4	Comprehend the characteristics of TE and TM waves.
C303.5	Design a RF transceiver system for wireless communication

C304	CEC366	Image Processing

C304.1	Know and understand the basics and fundamentals of digital image processing, such asdigitization, sampling, quantization, and 2D-transforms.
C304.2	Operate on images using the techniques of smoothing, sharpening and enhancement
C304.3	Understand the restoration concepts and filtering techniques.
C304.4	Learn the basics of segmentation, features extraction, compression and recognition methodsfor color models..
C304.5	Comprehend image compression concepts.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C305	CEC334	Analog IC Design

C305.1	Design amplifiers to meet user specifications.
C305.2	Analyse the frequency and noise performance of amplifiers
C305.3	Design and analyse feedback amplifiers and one stage op amps .
C305.4	Analyse stability of op amp.
C305.5	Testing experience of logic circuits.

C306	CEC352	Satellite Communication

C306.1	Identify the satellite orbits
C306.2	Analyze the satellite subsystems
C306.3	Evaluate the satellite link power budget
C306.4	Identify access technology for satellite
C306.5	Design various satellite applications

![Shree Sathyam College of Engineering and Technology logo]

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C307	MX3084	Disaster Risk Reduction and Management

C307.1	To impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction(DRR)
C307.2	To enhance understanding on Hazards, Vulnerability and Disaster Risk Assessmentprevention and risk reduction.
C307.3	To develop disaster response skills by adopting relevant tools and technology
C307.4	Enhance awareness of institutional processes for Disaster response in the country and
C307.5	Develop rudimentary ability to respond to their surrounding with potential disaster response in areas where they live with due sensitivity

C308	ET3491	Embedded Systems and IOT Design

C308.1	Explain the architecture and features of 8051
C308.2	Develop a model of an embedded system.
C308.3	List the concepts of real time operating systems.
C308.4	Learn the architecture and protocols of IoT.
C308.5	Design an IoT based system for any application.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C309	CS3491	Artificial Intelligence and Machine Learning

C309.1	Use appropriate search algorithms for problem solving
C309.2	Apply reasoning under uncertainty
C309.3	Build supervised learning models
C309.4	Build ensembling and unsupervised models
C309.5	Build deep learning neural network models

C310	OEE351	Renewable Energy Systems

C310.1	Attained knowledge about various renewable energy technologies
C310.2	Ability to understand and design a PV system
C310.3	Understand the concept of various wind energy system
C310.4	Gained knowledge about various possible hybrid energy systems
C310.5	Attained knowledge about various application of renewable energy technologies

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C311	CEC364	Wireless Broad Band Networks

C311.1	Design and implement the various protocols in wireless networks.
C311.2	Analyze the architecture of 3G network standards
C311.3	Analyze the difference of LTE-A network design from 4G standard.
C311.4	Design the interconnecting network functionalities by layer level functions.
C311.5	Explore the current generation (5G) network architecture.

C312	CEC345	Optical Communication and Networks

C312.1	Realize Basic Elements In Optical Fibers, Different Modes And Configurations.
C312.2	Analyze The Transmission Characteristics Associated With Dispersion And PolarizationTechniques.
C312.3	Design Optical Sources And Detectors With Their Use In Optical Communication System.
C312.4	Construct Fiber Optic Receiver Systems, Measurements And Techniques.
C312.5	Design Optical Communication Systems And Its Networks.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C313	CEC362	VLSI Testing and Design For Testability

C313.1	Understand logic and fault simulation requirements and testability measures.
C313.2	Understand the Design for Testability.
C313.3	Develop interfacing and memory testing.
C313.4	Perform testing with power management techniques.
C313.5	Carry-out fault Detection in analog circuits

C314	EC3561	VLSI Laboratory

C314.1	Write HDL code for basic as well as advanced digital integrated circuit
C314.2	Import the logic modules into FPGA Boards
C314.3	Synthesize Place and Route the digital Ips
C314.4	Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDAtools
C314.5	Test and Verification of IC design

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.
Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ANNA UNIVERSITY REGULATIONS: 2021

FINAL YEAR COURSES (VII & VIII SEMESTER)

Course Outcomes (Cos)

C401	GE3791	Human Values and Ethics

C401.1	Identify the Identify the importance of democratic, secular and scientific values in harmonious functioningof social life
C401.2	Practice democratic and scientific values in both their personal and professional life.
C401.3	Find rational solutions to social problems.
C401.4	Behave in an ethical manner in society
C401.5	Practice critical thinking and the pursuit of truth.

C402	GE3751	Principles of Management

C402.1	Upon completion of the course, students will be able to have clear understanding ofmanagerial functions like planning, organizing, staffing, leading & controlling.
C402.2	Have same basic knowledge on international aspect of management.
C402.3	Ability to understand management concept of organizing.
C402.4	Ability to understand management concept of directing.
C402.5	Ability to understand management concept of controlling.

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C403	CME365	Renewable Energy Technologies

C403.1	Discuss the Indian and global energy scenario.
C403.2	Describe the various solar energy technologies and its applications.
C403.3	Explain the various wind energy technologies.
C403.4	Explore the various bio-energy technologies.
C403.5	Discuss the ocean and geothermal technologies.

C404	OBT355	Biotechnology for Waste Management

C404.1	To learn the various methods biological treatment
C404.2	To know the details of waste biomass and its value addition
C404.3	To develop the bioconversion processes to convert wastes to energy
C404.4	To synthesize the chemicals and enzyme from wastes
C404.5	To produce the biocompost from wastes
C404.6	To apply the theoretical knowledge for the development of value added products

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080

C405	EC3711	Summer internship

C405.1	System-level design processes, verification and validation techniques, manufacturing andproduction processes in the firm or research facilities in the laboratory/research institute
C405.2	Analysis of industrial / research problems and their solutions
C405.3	Documentation of system specifications, design methodologies, process parameters,testing parameters and results
C405.4	Preparing of technical report and presentation

C406	EC3811	Project Work / Internship

C406.1	Formulate and analyze problem / create a new product/ process
C406.2	Design and conduct experiments to find solution
C406.3	Analyze the results and provide solution for the identified problem, prepare project report andmake presentation

Shree Sathyam
College of Engineering and Technology
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

NH-544, Salem - Coimbatore Highways, Kuppanur, Sankari Taluk, Salem - 637301, TamilNadu, India.

Email : principal@shreesathyam.edu.in   Web : www.shreesathyam.edu.in   Phone : 04283 - 244080