



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

PROGRAMME: B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

VISION

- ❖ To be a centre of excellence in education, training and research in Electronics and Communication Engineering to cultivate technically competent professionals for Industry and Society.

MISSION

- ❖ To impart knowledge and skills to face challenges in Electronics and Communication Engineering.
- ❖ To provide ethical and value based education to address the social needs.
- ❖ To provide innovative environment to learning global atonements.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- ❖ To provide the students with a strong foundation in the required sciences in order to pursue studies in Electronics and Communication Engineering.
- ❖ To gain adequate knowledge to become good professional in electronic and communication engineering associated industries, higher education and research.
- ❖ To develop attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolves.
- ❖ To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.
- ❖ To inculcate in the students a professional and ethical attitude and an ability to visualize the engineering issues in a broader social context.

PROGRAM OUTCOMES (POs)

- ❖ Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ❖ Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences,



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and engineering sciences.

- ❖ Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- ❖ Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- ❖ Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- ❖ The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- ❖ Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- ❖ Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ❖ Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- ❖ Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- ❖ Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- ❖ Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- ❖ Design, develop and analyze electronic systems through application of relevant electronics, mathematics and engineering principles.



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- ❖ Design, develop and analyze communication systems through application of fundamentals from communication principles, signal processing, and RF System Design & Electromagnetics.
- ❖ Adapt to emerging electronics and communication technologies and develop innovative solutions for existing and newer problems.

COURSE OUTCOMES (COs)

Regulation	2021
Semester	01
Course Code	IP3151
Course Name	Induction Programme
Course Outcome	<ul style="list-style-type: none">❖ To make the students feel comfortable in their new environment, open them up, set a healthy daily routine, create bonding in the batch as well as between faculty and students, develop awareness, sensitivity and understanding of the self, people around them, society at large, and nature.

Regulation	2021
Semester	01
Course Code	HS3151
Course Name	Professional English - I
Course Outcome	<ul style="list-style-type: none">❖ To listen and comprehend complex academic texts.❖ To read and infer the denotative and connotative meanings of technical texts.❖ To write definitions, descriptions, narrations and essays on various topics.❖ To speak fluently and accurately in formal and informal communicative contexts.❖ To express their opinions effectively in both oral and written medium of communication.

Regulation	2021
Semester	01



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Course Code	MA3151
Course Name	Matrices and Calculus
Course Outcome	<ul style="list-style-type: none">❖ Use the matrix algebra methods for solving practical problems.❖ Apply differential calculus tools in solving various application problems.❖ Able to use differential calculus ideas on several variable functions.❖ Apply different methods of integration in solving practical problems.❖ Apply multiple integral ideas in solving areas, volumes and other practical problems.

Regulation	2021
Semester	01
Course Code	PH3151
Course Name	Engineering Physics
Course Outcome	<ul style="list-style-type: none">❖ Understand the importance of mechanics.❖ Express their knowledge in electromagnetic waves.❖ Demonstrate a strong foundational knowledge in oscillations, optics and lasers.❖ Understand the importance of quantum physics.❖ Comprehend and apply quantum mechanical principles towards the formation of energy bands.

Regulation	2021
Semester	01
Course Code	CY3151
Course Name	Engineering Chemistry
Course Outcome	<ul style="list-style-type: none">❖ To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.❖ To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.



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	<ul style="list-style-type: none">❖ To apply the knowledge of phase rule and composites for material selection requirements.❖ To recommend suitable fuels for engineering processes and applications.❖ To recognize different forms of energy resources and apply them for suitable applications in energy sectors.
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Regulation	2021
Semester	01
Course Code	GE3151
Course Name	Problem Solving and Python Programming
Course Outcome	<ul style="list-style-type: none">❖ Develop algorithmic solutions to simple computational problems.❖ Develop and execute simple Python programs.❖ Write simple Python programs using conditionals and looping for solving problems.❖ Decompose a Python program into functions.❖ Represent compound data using Python lists, tuples, dictionaries etc.❖ Read and write data from/to files in Python programs.

Regulation	2021
Semester	01
Course Code	GE3171
Course Name	Problem Solving and Python Programming Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Develop algorithmic solutions to simple computational problems.❖ Develop and execute simple Python programs.❖ Implement programs in Python using conditionals and loops for solving problems.❖ Deploy functions to decompose a Python program.❖ Process compound data using Python data structures.❖ Utilize Python packages in developing software applications.



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Regulation	2021
Semester	01
Course Code	BS3171
Course Name	Physics and Chemistry Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Understand the functioning of various physics laboratory equipment.❖ Use graphical models to analyze laboratory data.❖ Use mathematical models as a medium for quantitative reasoning and describing physical reality.❖ Access, process and analyze scientific information.❖ Solve problems individually and collaboratively.❖ To analyze the quality of water samples with respect to their acidity, alkalinity, hardness.❖ To determine the amount of metal ions through volumetric and spectroscopic techniques.❖ To analyze and determine the composition of alloys.❖ To learn simple method of synthesis of nanoparticles.❖ To quantitatively analyse the impurities in solution by electro analytical techniques.

Regulation	2021
Semester	01
Course Code	GE3172
Course Name	English Laboratory
Course Outcome	<ul style="list-style-type: none">❖ To listen and comprehend complex academic texts.❖ To speak fluently and accurately in formal and informal communicative contexts.❖ To express their opinions effectively in both oral and written medium of communication.



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Regulation	2021
Semester	02
Course Code	HS3251
Course Name	Professional English - II
Course Outcome	<ul style="list-style-type: none">❖ To compare and contrast products and ideas in technical texts.❖ To identify cause and effects in events, industrial processes through technical texts❖ To analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format.❖ To report events and the processes of technical and industrial nature.❖ To present their opinions in a planned and logical manner, and draft effective resumes in context of job search.

Regulation	2021
Semester	02
Course Code	MA3251
Course Name	Statistics and Numerical Methods
Course Outcome	<ul style="list-style-type: none">❖ Apply the concept of testing of hypothesis for small and large samples in real life problems.❖ Apply the basic concepts of classifications of design of experiments in the field of agriculture.❖ Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.❖ Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.❖ Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.



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Regulation	2021
Sem	02
Subject Code	PH3254
Subject Name	Physics for Electronics Engineering
	At the end of the course, the students should be able to <ul style="list-style-type: none">❖ know basics of crystallography and its importance for varied materials properties
Course Outcome	<ul style="list-style-type: none">❖ Gain knowledge on the electrical and magnetic properties of materials and their applications.❖ Understand clearly of semiconductor physics and functioning of semiconductor devices.❖ Understand the optical properties of materials and working principles of various optical devices.❖ Appreciate the importance of nanotechnology and nanodevices.

Regulation	2021
Sem	02
Subject Code	BE3254
Subject Name	Electrical and Instrumentation Engineering
	After completing this course, the students will be able to <ul style="list-style-type: none">❖ Explain the working principle of electrical machines❖ Analyze the output characterizes of electrical machines❖ Choose the appropriate electrical machines for various applications❖ Explain the types and operating principles of measuring instruments❖ Explain the basic power system structure and protection schemes

Regulation	2021
Semester	02
Course Code	GE3251



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Course Name	Engineering Graphics
Course Outcome	<ul style="list-style-type: none">❖ Use BIS conventions and specifications for engineering drawing.❖ Construct the conic curves, involutes and cycloid.❖ Solve practical problems involving projection of lines.❖ Draw the orthographic, isometric and perspective projections of simple solids.❖ Draw the development of simple solids.

Regulation	2021
Sem	01
Subject Code	EC3251
Subject Name	Circuit Analysis
Course Outcome	<p>On successful completion of this course, the student will be able to</p> <ul style="list-style-type: none">❖ Apply the basic concepts of circuit analysis such as Kirchoff's laws, mesh current and node voltage method for analysis of DC and AC circuits.❖ Apply suitable network theorems and analyze AC and DC circuits❖ Analyze steady state response of any R, L and C circuits❖ Analyze the transient response for any RC, RL and RLC circuits and frequency response of parallel and series resonance circuits.❖ Analyze the coupled circuits and network topologies

Regulation	2021
Sem	02
Subject Code	GE3271
Subject Name	Engineering Practices Laboratory



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Course Outcome	<ul style="list-style-type: none">❖ 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.❖ Wire various electrical joints in common household electrical wire work.❖ 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.❖ Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.
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Regulation	2021
Semester	02
Course Code	EC3271
Course Name	Circuit Analysis Laboratory
Course Outcome	At the end of the course, the student will be able to <ul style="list-style-type: none">❖ Design RL and RC circuits.❖ Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems

Regulation	2021
Semester	02
Course Code	GE3272
Course Name	Communication Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Speak effectively in group discussions held in a formal/semi formal context.❖ Write emails and effective job applications.

Regulation	2021
Semester	03



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Course Code	MA3355
Course Name	Random Processes And Linear Algebra
Course Outcome	<ul style="list-style-type: none">❖ Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.❖ Demonstrate accurate and efficient use of advanced algebraic techniques.❖ Apply the concept of random processes in engineering disciplines.❖ Understand the fundamental concepts of probability with a thorough knowledge of standard distributions that can describe certain real-life phenomenon.❖ Understand the basic concepts of one and two dimensional random variables and apply them to model engineering problems

Regulation	2021
Sem	01
Subject Code	CS3353
Subject Name	C Programming and Data Structures
Course Outcome	<ul style="list-style-type: none">❖ C programs for any real world/technical application.❖ Apply advanced features of C in solving problems.❖ Write functions to implement linear and non-linear data structure operations.❖ Suggest and use appropriate linear/non-linear data structure operations for solving a given problem.❖ Appropriately use sort and search algorithms for a given application.❖ Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.

Regulation	2021
Sem	01
Subject Code	EC3354
Subject Name	Signals and Systems



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Course Outcome	<ul style="list-style-type: none">❖ Determine if a given system is linear/causal/stable❖ Determine the frequency components present in a deterministic signal characterize continuous LTI systems in the time domain and frequency domain❖ Characterize discrete LTI systems in the time domain and frequency domain❖ Compute the output of an LTI system in the time and frequency domains
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Regulation	2021
Semester	03
Course Code	EC3353
Course Name	Electronic Devices and Circuits
Course Outcome	<ul style="list-style-type: none">❖ Explain The Structure And Working Operation Of Basic Electronic Devices.❖ Design And Analyze Amplifiers.❖ Analyze Frequency Response Of Bjt And Mosfet Amplifiers❖ Design And Analyze Feedback Amplifiers And Oscillator Principles.❖ Design And Analyze Power Amplifiers And Supply Circuits

Regulation	2021
Semester	03
Course Code	EC3351
Course Name	Control Systems
Course Outcome	<ul style="list-style-type: none">❖ Compute the transfer function of different physical systems❖ Analyze the time domain specification and calculate the steady state error❖ Illustrate the frequency response characteristics of open loop and closed loop system response.❖ Analyze the stability using Routh and root locus techniques.❖ Illustrate the state space model of a physical system and discuss the



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	concepts of sampled data control system
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Regulation	2021
Semester	03
Course Code	EC3352
Course Name	Digital Systems Design
Course Outcome	<ul style="list-style-type: none">❖ Use Boolean algebra and simplification procedures relevant to digital logic.❖ Design various combinational digital circuits using logic gates.❖ Analyze and design synchronous sequential circuits.❖ Analyze and design asynchronous sequential circuits. .❖ Build logic gates and use programmable devices

Regulation	2021
Semester	03
Course Code	EC3361
Course Name	Electronic Devices and Circuits Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Characteristics of PN Junction Diode and Zener diode.❖ Design and Testing of BJT and MOSFET amplifiers.❖ Operation of power amplifiers.

Regulation	2021
Semester	03
Course Code	EC3362
Course Name	C Programming and Data Structures Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Use different constructs of C and develop applications❖ Write functions to implement linear and non-linear data structure operations❖ Suggest and use the appropriate linear / non-linear data structure operations for a given problem❖ Apply appropriate hash functions that result in a collision free scenario for data storage and Retrieval



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	<ul style="list-style-type: none">❖ Implement Sorting and searching algorithms for a given application
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Regulation	2021
Semester	03
Course Code	GE3361
Course Name	Professional Development
Course Outcome	<ul style="list-style-type: none">❖ Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements.❖ Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding.❖ Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.

Regulation	2021
Semester	04
Course Code	EC3452
Course Name	Electromagnetic Fields
Course Outcome	<ul style="list-style-type: none">❖ Relate the fundamentals of vector, coordinate system to electromagnetic concepts❖ Analyze the characteristics of Electrostatic field❖ Interpret the concepts of Electric field in material space and solve the boundary conditions❖ Explain the concepts and characteristics of Magneto Static field in material space and solve boundary conditions.❖ Determine the significance of time varying fields

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Semester	04
Course Code	EC3401
Course Name	Networks and Security
Course Outcome	<ul style="list-style-type: none">❖ Explain the Network Models, layers and functions.❖ Categorize and classify the routing protocols.❖ List the functions of the transport and application layer.❖ Evaluate and choose the network security mechanisms.❖ Discuss the hardware security attacks and countermeasures.

Regulation	2021
Semester	04
Course Code	EC3451
Course Name	Linear Integrated Circuits
Course Outcome	<ul style="list-style-type: none">❖ Design linear and nonlinear applications of OP – AMPS❖ Design applications using analog multiplier and PLL❖ Design ADC and DAC using OP – AMPS❖ Generate waveforms using OP – AMP Circuits❖ Analyze special function ICs

Regulation	2021
Semester	04
Course Code	EC3492
Course Name	Digital Signal Processing
Course Outcome	<ul style="list-style-type: none">❖ Apply DFT for the analysis of digital signals and systems❖ Design IIR and FIR filters❖ Characterize the effects of finite precision representation on digital filters❖ Design multirate filters❖ Apply adaptive filters appropriately in communication systems



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Regulation	2021
Semester	04
Course Code	EC3491
Course Name	Communication Systems
Course Outcome	<ul style="list-style-type: none">❖ Gain knowledge in amplitude modulation techniques❖ The concepts of Random Process to the design of communication systems❖ Gain knowledge in digital techniques❖ Gain knowledge in sampling and quantization❖ Understand the importance of demodulation techniques

Regulation	2021
Semester	04
Course Code	EC3461
Course Name	Communication Systems Laboratory
Course Outcome	<p>At the end of the laboratory course, the student will be able to understand the:</p> <ul style="list-style-type: none">❖ Design AM, FM & Digital Modulators for specific applications.❖ Compute the sampling frequency for digital modulation.❖ Simulate & validate the various functional modules of Communication system.❖ Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes.❖ Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of Communication system.

Regulation	2021
Semester	04
Course Code	EC3462



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Course Name	Linear Integrated Circuits Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Analyze various types of feedback amplifiers❖ Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators❖ Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave- shaping circuits and multivibrators, filters using SPICE Tool.❖ Design amplifiers, oscillators, D-A converters using operational amplifiers.❖ Design filters using op-amp and perform an experiment on frequency response