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An Institute with a Difference

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VISION OF THE COLLEGE

Building RNSIT into a World - Class Institution.

MISSION OF THE COLLEGE

To impart high quality education in Engineering, Technology and Management with a difference, enabling students to excel in their career by

1. Attracting quality Students and preparing them with a strong foundation in fundamentals so as to achieve distinctions in various walks of life leading to outstanding contributions.
2. Imparting value based, need based, and choice based and skill based professional education to the aspiring youth and carving them into disciplined, World class Professionals with social responsibility.
3. Promoting excellence in Teaching, Research and Consultancy that galvanizes academic consciousness among Faculty and Students.
4. Exposing Students to emerging frontiers of knowledge in various domains and make them suitable for Industry, Entrepreneurship, Higher studies, and Research & Development.
5. Providing freedom of action and choice for all the Stake holders with better visibility.

VISION OF THE DEPARTMENT

Conquering technical frontiers in the field of Electronics and Communications.

MISSION OF THE DEPARTMENT

1. To achieve and foster excellence in core Electronics and Communication engineering with focus on the hardware, simulation and design.
2. To pursue Research, development and consultancy to achieve self-sustenance.
3. To create benchmark standards in electronics and communication engineering by active involvement of all stakeholders.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

ECE Graduates within three-four years of graduation will have

- **PEO1**: Acquired the fundamentals of computers and applied knowledge of Information Science & Engineering and continue to develop their technical competencies by problem solving using programming.
- **PEO2**: Ability to formulate problems attained the Proficiency to develop system/application software in a scalable and robust manner with various platforms, tools and frameworks to provide cost effective solutions.
- **PEO3**: Obtained the capacity to investigate the necessities of the software Product, adapt to technological advancement, promote collaboration and interdisciplinary activities, Protecting Environment and developing Comprehensive leadership.
- **PEO4**: Enabled to be employed and provide innovative solutions to real-world problems across different domains.
- **PEO5**: Possessed communication skills, ability to work in teams, professional ethics, social responsibility, entrepreneur and management, to achieve higher career goals, and pursue higher studies.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems
- **PO2: Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- **PO3: 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 public health and safety, and cultural, societal, and environmental considerations.
- **PO4: 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.
- **PO5: 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.
- **PO6: 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.
- **PO7: 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.

- **PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with the 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.
- **PO11: 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.
- **PO12: 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)

ECE Graduates will have

- **PSO1:** Apply fundamental knowledge of Electronics, Communications, Signal processing, VLSI, Embedded and Control systems etc., in the analysis, design, and development of various types of real-time integrated electronic systems and to synthesize and interpret the experimental data leading to valid conclusions.
- **PSO2:** Demonstrate competence in using Modern hardware languages and IT tools for the design and analysis of complex electronic systems as per industry standards along with analytical and managerial skills to arrive at appropriate solutions, either independently or in team.

CO-PO and CO-PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1		2	1	1		2	1	1	1	1	
CO2	2	2	2		2	1	1	1	2	1	1	1	1	
CO3	2	2	2		2	1	1	1	2	1	2	1	1	
CO4	2	2	2		2	1	1	1	2	1	2	1	1	
CO5	2	2	2		2	1	1	1		1	2	1	1	
Avg. CO	2	2	1.8		2	1	1	0.8	1.6	1	1.6	1	1	

LIST OF EXPERIMENTS (AS PER VTU SYLLABUS)

PRACTICAL COMPONENT OF IPCC (Experiments can be conducted using a suitable circuit simulation software or hardware components)

Sl.NO	Experiments
1	Basic Signals and Signal Graphing: a) unit Step, b) Rectangular, c) standard triangle d) sinusoidal and e) Exponential signal.
2	Illustration of signal representation in time and frequency domains for a rectangular pulse.
3	Amplitude Modulation and demodulation: Generation and display the relevant signals and its spectrums.
4	Frequency Modulation and demodulation: Generation and display the relevant signals and its spectrums.
5	Sampling and reconstruction of low pass signals. Display the signals and its spectrum.
6	Time Division Multiplexing and demultiplexing.
7	PCM Illustration: Sampling, Quantization and Encoding
8	Generate a)NRZ, RZ and Raised cosine pulse, b) Generate and plot eye diagram
9	Generate the Probability density function of Gaussian distribution function.
10	Display the signal and its spectrum of an audio signal.

Course outcomes (Course Skill Set):

At the end of the course, the student will be able to:

1. Understand the principles of analog communication systems and noise modelling.
2. Identify the schemes for analog modulation and demodulation and compare their performance.
3. Design of PCM systems through the processes sampling, quantization and encoding.
4. Describe the ideal condition, practical considerations of the signal representation for baseband transmission of digital signals.
5. Identify and associate the random variables and random process in Communication system design.